Uzhhorod National University

Faculty of Dentistry

Department of Fundamental Medical Disciplines and

Orthopedic Dentistry

"**APPROVE**"

Dean of the Faculty of Dentistry

Doctor of Medical Sciences, Prof. Kostenko Ye.Ya.

"\_\_" \_\_\_\_\_\_\_2022

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## WORK PROGRAM OF THE DISCIPLINE

**ORTHOPEDIC DENTISTRY, III COURSE**

(code and name of the discipline)

Knowledge area 22 Healthcare

(cipher and name of the direction of training)

specialty 221 DENTISTRY

(cipher and name of the specialty)

Specialization DENTISTRY

(name of specialization)

Institute, Faculty, Department of Uzhhorod National University, Faculty of Dentistry, full-time faculty.

(name of institute, faculty, department)

Uzhhorod – 2022

Work program on "Orthopedic Dentistry" for students of the III - th year

(name of the discipline)

dental faculty in the field of knowledge "22 Health care", specialty "221 Dentistry" – 33 p.

"\_\_" \_\_\_\_\_\_\_\_ 2022

Developers:

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The work program was approved at a meeting of the Department of Fundamental Medical Disciplines and Orthopedic Dentistry

"\_\_" \_\_\_\_\_\_\_\_ 2022 year No \_\_.

Head of the Department

Doctor of Medicine, Associate Professor

"\_\_" \_\_\_\_\_\_\_\_ 2022 year \_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_

(signature) (surname and initials)

Approved by the educational and methodical commission of the higher educational institution in the specialty

«221 Dentistry»\_

(cipher, name)

"\_\_" \_\_\_\_\_\_\_\_\_ 2022 year No \_\_\_

"\_\_" \_\_\_\_\_\_\_\_\_ 2022 \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ . (signature) (surname and initials)

# **Description of the discipline**

|  |  |  |  |
| --- | --- | --- | --- |
| Name of indicators | Field of knowledge, direction of training, educational qualification level | Characteristics of the discipline | |
| **full-time education** | |
| Number of credits – 6 | Field of knowledge  22 Healthcare  (cipher and name) | Normative  (optional) | |
| Direction of training  221 DENTISTRY  (cipher and name) |
| Modules – 2 | Specialty (professional  Direction):  Dentistry | **Year of preparation:** | |
| Content modules – 9 | 3rd | 3rd |
| Individual research task \_\_\_\_\_\_\_\_\_\_  (title) | **Semester** | |
| Total number of hours - 180 | V -th | VI -th |
| **Lecture** | |
| Weekly hours for full-time education:  classroom – 110  independent work of the student - 70 | Educational qualification level:  specialist | 10 a.m. | 10 a.m. |
| **Practical, seminary** | |
| 50 hours | 40 hours |
| **Laboratory** | |
| 0 h. | 0 h. |
| **Independent work** | |
| 35 hours | 35 hours |
| **Individual tasks:** hours. | |
| Type of control: diff. withaliq  6 hours | |

The ratio of the number of hours of classroom classes to independent and individual work is:

for full-time education – 61% : 39%.

1. **The purpose and objectives of the discipline**

### The purpose and objectives of the discipline

* 1. **The purpose** of teaching the discipline "orthopedic dentistry" is the professional formation of a future specialist who is able to solve clinical problems using acquired knowledge and skills in the discipline, which involves the integration of teaching the discipline with therapeutic, surgical and pediatric dentistry.

1.2. **The main tasks** of studying the discipline "orthopedic dentistry" are: to teach students to examine patients in the clinical office using dental equipment and tools, to teach students to analyze diagnostic models of patients with different types of pathology of the dentition, on the basis of clinical thinking to choose methods for restoring defects in teeth and dentition; time of clinical reception of thematic patients with various defects of the dentition; teach students to solve situational problems that have a clinical focus.

1.3. According to the requirements of the educational and professional program, students must

**know:**

* methods of examination of patients
* know the functional anatomy of the components of the chewing apparatus and the topography of the muscles that take the main part in the movements of the lower jaw
* analyze occlusion factors
* indications for use and methods of local anesthesia
* functional anatomy and biomechanics of the dentition
* indications for the use of various types of artificial crowns
* indications for prosthetics with bridges
* clinical and technological stages of manufacturing artificial crowns
* clinical and technological stages of the manufacture of bridges
* factors that ensure the fixation of fixed structures
* indications for prosthetics with various types of partially removable dentures
* design features of different types of partially removable dentures
* factors that ensure the fixation of partially removable dentures
* clinical and technological stages of manufacturing partially removable dentures
* composition, physico-chemical properties and technology of application of basic and auxiliary clinical and dental materials
* the effect of prostheses and prosthetic materials on the tissues of the oral cavity and the human body
* analyze the results of the examination of a dental patient with a complete absence of teeth in the clinic of orthopedic dentistry
* explain the results of clinical and special (additional) research methods
* know the methods of obtaining functional prints in the complete absence of teeth
* learn the stages of determining and fixing the central ratio of toothless jaws
* compare different types of articulators
* learn the main provisions of spherical and articular theories of articulation
* know the principles of anatomical setting of teeth
* know the principles of setting on a spherical surface
* know the clinical and technological stages of manufacturing complete removable dentures
* know the methods of plastering models with wax reproductions of prostheses in a ditch
* know polymerization modes
* know the etiological factors, clinical manifestations and pathogenesis of mechanical, chemical, thermal insulation and sensitizing effects of removable prostheses
* know recommendations for the care of complete removable dentures
* know the indications for the manufacture of metal-ceramic structures
* know the indications, the composition of cements for the constant fixation of crowns
* know the classification of metal alloys used for the manufacture of metal-ceramic structures
* determine the basic requirements for alloys of metals and ceramic masses
* know the mechanism for combining porcelain mass with metal
* analyze possible errors in the manufacture of metal-ceramic structures, ways to prevent them
* know the methods of treatment of a patient with defects in the hard tissues of the teeth
* know the different designs of pinteeth
* know the errors and complications of fixed prosthetics
* know the clinical signs of partial defects in the dentition in patients requiring the manufacture of fixed dentures
* know the volume and types of patient preparation for partial defects of the dentition
* know the errors and complications of partially removable prosthetics

**be able to:**

•to examine the dental patient

•apply the basic principles of asepsis, antiseptics, anesthesia

•diagnose emergencies in the clinic of orthopedic dentistry

•provide the necessary emergency care in the clinic of orthopedic dentistry

•to conduct examinations of patients by functional methods

* fit hard individual spoons on the upper and lower jaws;
* perform functional prints
* be able to carry out plastering of models in the articulator
* be able to check the design of complete removable dentures
* be able to apply full removable dentures
* be able to carry out correction of complete removable dentures
* be able to conduct a clinical examination of patients with jaw fractures
* be able to carry out differentialdiagnosis of fractures of the jaws of different localization
* be able to treat diseasesof the oral mucosa that occur under the influence of removable dentures
* be able to apply transport tires and perform ligature binding of teeth.
* be able to carry out the manufacture of temporary and stationary (laboratory) tires;
* be able to receive prints and determine the central ratio in the manufacture of molding devices; make a choice of the design of the denture, depending on the degree of narrowing of the oral slit;
* be able to determine the volume of orthopedic treatment measures for false joints;
* be able to receive prints in patients with microstomy
* be able to carry out differential diagnosis, formulate a preliminary clinical diagnosis;
* determine the tactics of treatment of the patient in the clinic of orthopedic dentistry
* vita make a plan for preparing the oral cavity for prosthetics
* have the skills of preparing teeth for metal-ceramic crowns
* possess various methods of retraction of the gingival edge
* demonstrate the receipt of prints with silicone masses
* carry out the purchase of the finished structure, check the occlusion
* be able to examine a patient with defects in the hard tissues of the teeth
* be able to carry out intrasyndromic differential diagnosis in case of destruction of hard tooth tissues
* be able to choose the design of the veneer in different clinical situations
* inmita to prevent complications after teeth preparation
* be able to perform the fixation of veneers
* demonstrate separate clinical and technological stages of manufacturing pin structures;
* demonstrate the manufacture of a solid stump tab
* to carry out orthopedic treatment of major dental diseases
* ddemonstrate separate clinical and laboratory stages of the manufacture of bridges;
* to perform fixation of bridges;
* inmitty choose the method of making a temporary crown in various clinical situations;
* inperforming tooth preparation for an artificial crown (cast crown, combined summer and metal-free crown)
* toperform the processing of a detached tooth with various means of protecting the dentin
* oreceive anatomical prints with various imprint materials silicone, alginate
* to lead separate clinical and technological stages of the manufacture of temporary crowns;
* inmita to prevent complications after teeth preparation
* toperform fixation and removal of a temporary crown
* inmita to examine the patient with partial defects of the dentition
* tocarry out separate clinical and technological stages of manufacturing a clasp prosthesis with a locking mount in the labels
* inmits to obtain anatomical and functional prints with various imprint materials
* inthe labels to check the design of the clasp prosthesis
* inthe labels to carry out the correction of partial removable dentures

1. **The program of the discipline**

**Module 1. Fixed dentures**

***Content module 1***

***Examination of the patient in the clinic of orthopedic dentistry.***

***Specific objectives:***

* *examine the patient;*
* *analyze the results of the examination of a dental patient in the clinic of orthopedic dentistry;*
* *plan an additional examination of the patient;*
* *explain the results of clinical and special (additional) research methods;*
* *determine the tactics of treatment of the patient in the clinic of orthopedic dentistry.*

**Topic 1. Examination of the patient in the clinic of orthopedic dentistry. Clinical methods of examination Examination of patients with partial loss of teeth. Changes in the dentition with partial loss of teeth.**  **Additional (special) methods of examination. Preliminary and final diagnosis.**

* Basic and additional methods of examination of patients with partial loss of teeth
* Structural and functional changes in the dentition with tooth loss
* Disintegration of the dentition into separate functional groups
* Dentitional deformities
* Occlusive disorders, traumatic occlusion
* Functional overload of hard tissues of teeth and periodontium
* Dysfunction of TMJ and masticatory muscles
* Preparation of the oral cavity for chZP prosthetics
* X-ray examination methods. Targeted dental radiography, orthopantomography, computed 3D tomography, TMJ tomography
* Electromyography
* Intra- and extraoral recording of mandible movements (axiography and functionography)
* Evaluation of occlusive ratios of dentition. Occlusiography in the oral cavity and on diagnostic models in the articulator. Electronic precision analysis of T-Scan occlusion (Biopack system)
* Electronic analysis of joint noise Ji-Vi-Ay (Biopack system)
* Assessment of periodontal tissue condition, Periotest system
* Assessment of the condition of dental pulp, electroodontodiagnostics
* Static and dynamic methods for assessing chewing efficiency. Index score for Agapov and Oxman
* Galvanometry
* Definition of the concept of diagnosis. Preliminary and final diagnosis. Components of the diagnosis in the clinic of orthopedic dentistry

***Content module 2***

***Clinical analysis of occlusion***

***Specific objectives:***

* *explain the functional anatomy of the components of the chewing apparatus;*
* *analyze occlusion factors;*
* *compare different types of articulators;*
* *be able to carry out plastering of models in the articulator;*
* *analyze diagnostic models in the articulator.*

**Topic 2. Functional anatomy of the dentition**

* Functional anatomy of masticatory muscles. Synergism and coherent antagonism, a state of relative physiological rest of the masticatory muscles and its practical significance. Reflex regulation of the masticatory muscles.
* Functional anatomy of TMJ
* Anatomy of periodontal tissues, the structure of the gingival joint. Reserve and residual endurance of periodontal tissues. Physiological and pathological mobility
* The structure of the dentition, physiological and pathological bites. Factors ensuring the stability of the position of the teeth. Ways and mechanisms of redistribution of chewing pressure, cranial buttresses
* Anatomy of the occlusal surface of dentition and individual teeth, sagittal and transversal occlusive curves
* Anatomical and functional occlusive surface, occlusive compass.

**Topic 3. Biomechanics of the dentition. Functional occlusion**

* Biomechanics, modern terminology
* Phases of Giza chewing movements, occlusion factors
* Movement of the lower jaw in the vertical direction. Terminal hinge axis, Posset diagram
* Movement of the lower jaw in the sagittal direction. Sagittal articular and incisal pathways, sagittal articular and incisal angles
* Movement of the lower jaw in the transversal direction. Working and balancing side. Transversal articular and incisal paths, benet angle and movement, Gothic angle
* Functional occlusion (articulation) Types of occlusion, their characteristics and signs
* Occlusion and articulation, types of occlusion.
* Central occlusion, occlusive contacts are normal. Classification of antagonizing surfaces according to Jenkelson, the concept of stable and unstable occlusive contacts
* Anterior occlusion, contacts are normal. Bonville's three-point contact
* Lateral occlusion, contact variants (occlusive concepts)
* Supracontacts, classification

**Topic 4. Devices that reproduce the movements of the lower jaw. Articulators - general characteristics**

* Devices that reproduce the movements of the lower jaw, classification, scope of application
* Structural parts of articulators, their function
* Medium anatomical articulators – features, indications for use
* Adjustable articulators – features, indications for use, customizable methods
* tion according to individual parameters. Axiography
* Methods of transferring models to the articulator (using a balancer, staged table, front arc)

**Topic 5. Basics of working with the articulator. Clinical analysis of occlusion**

* Method of registering the position of the upper jaw using the facial arch
* The method of transferring models to the articulator using the front arc
* Method of obtaining occlusive registrants for fixing the ratio of the jaws and adjusting the articular mechanisms
* Method of modeling an individual frontal guide

***Content module 3***

***Anesthesia in the clinic of orthopedic dentistry***

**Specific objectives:**

* *determine the indications for anesthesia when preparing the living teeth;*
* *choose a method of anesthesia when preparing teeth;*
* *diagnose possible complications of local anesthesia;*
* *provide medical care for emergencies (dizziness, collapse, hypertensive crisis, hypoglycemic coma, epilepsy, anaphylactic shock).*

**Topic 6. Anesthesia in the clinic of orthopedic dentistry**

* Pain, mechanism of occurrence, ways of conduct. Theories of toothache
* Innervation of the maxillofacial area
* Types of anesthesia in outpatient dental practice.
* Conductive anesthesia in the upper and lower jaws – methods, anesthesia zones
* Infiltration anesthesia in the oral cavity – techniques, indications
* Modern local anesthetics – classification, composition, pharmacodynamics

**Topic 7. Local and general complications of injectable anesthesia.**

* Common complications of injectable anesthesia – causes, ways to prevent
* Local complications of injectable anesthesia – causes, ways to prevent
* Emergency conditions at the dental reception (anaphylactic shock, angioedema, myocardial infarction, angina attack, hypertensive crisis, stroke, asthma attack, epileptic seizure) – clinical manifestations, first aid

***Content module 4***

***Prosthetics with artificial crowns***

***Specific objectives:***

* *know the indications for the use of artificial crowns;*
* *perform tooth preparation for an artificial crown (metal stamped, cast, plastic crown, metal-ceramic);*
* *demonstrate the receipt of anatomical prints with various imprint materials;*
* *compare different types of artificial crowns;*
* *learn the clinical and technological rules for the manufacture of artificial crowns;*
* *anticipate the consequences of teeth preparation and be able to protect the steamed living teeth;*
* *generalize the factors that ensure the fixation of the artificial crown;*
* *fix the artificial crown;*
* *perform the removal of an artificial crown.*

**Topic 8. Methods of replacing defects in hard tissues of teeth, orthopedic structures. Artificial crowns – types, indications for prosthetics**

* Etiology of defects in the crown of the teeth. Classification of defects according to Black, t index of destruction of the occlusal surface of the tooth (IROPZ, Milikevich index)
* Types of orthopedic structures to replace defects in the crown of the teeth - indications for use depending on the degree of tooth decay
* Artificial crowns – indications, classifications
* Preparing the oral cavity for prosthetics

**Topic 9. Preparation of teeth for artificial crowns – rules, techniques, tools. Protection of vital teeth during and after preparation**

* Tools for teeth preparation for fixed orthopedic structures
* General rules for teeth preparation, safety measures, control of the depth of preparation of hard tissues
* Protection of vital teeth during and after preparation. Pharmaceutical structures, dentin sealants
* Complications during and after teeth preparation – causes, ways to prevent
* The sequence of preparation of tooth surfaces for an artificial crown
* Marginal adaptation of crowns, variants of gingival preparation, types of ledges. Ledge functions
* Gum retraction, types, techniques

**Topic 10.**  **Clinical stages of the manufacture of stamped metal crowns. Laboratory stages of the manufacture of stamped metal crowns**

* Indications for prosthetics with stamped metal crowns
* Method of preparation for a stamped crown
* Getting prints for a stamped crown
* Crown fitting
* The method of fixing the crown
* Production and preparation of working models
* Creation of gypsum stamp and counter-stamp, selection of sleeves
* Pre-stamping technique
* Stamping methods (external, combined)
* External stamping technology
* Combined stamping technology
* Whitening and polishing crowns

**Topic 11.**  **Pharmaceutical crowns – indications, manufacturing methods, materials.**

* The purpose of using temporary protective structures
* Types of pharmaceutical crowns
* Methods for the manufacture of pharmaceutical crowns
* Materials for the manufacture of temporary crowns by the direct method (acrylic, composite)
* Direct (direct) method of making temporary crowns

**Topic 12.**  **Laboratory method for the manufacture of pharmaceutical crowns**

* Technologies for the manufacture of plastic crowns by laboratory method (on models made of ordinary gypsum and collapsible combined
* Acrylic plastics – composition, properties
* Compression pressing technology, plastic polymerization modes

***Content module 5***

***Bridge prosthetics***

***Specific objectives:***

* *identify typical clinical signs of partial defects in the dentition;*
* *be able to examine the patient with partial defects of the dentition;*
* *explain clinical and special (additional) research methods for patients with partial defects of the dentition;*
* *know the types of preparation of abutment teeth;*
* *interpret the general principles of treatment, rehabilitation, prevention of partial defects of the dentition with fixed dentures;*
* *explain the biomechanics of the bridge;*
* *explain the clinical and laboratory stage and the manufacture of bridges stamped-soldered, cast);*
* *analyze errors and complications of fixed prosthetics;*
* *perform fixation of the bridge;*
* *assess the prognosis for the treatment of partial defects in the dentition with fixed dentures.*

**Topic 13. Clinical stages of manufacturing solid metal and combined crowns.**  **Laboratory stages of the manufacture of solid metal and combined crowns**

* Indications for prosthetics with solid metal and combined crowns
* The method of preparation of teeth for solid crowns, options for gingival preparation
* Method of obtaining prints
* Fitting cast crowns
* Occlusive correction and fixation of cast crowns

Production of collapsible combined models

* Modeling of frame reproduction of solid metal-plastic crowns
* Metal alloys for the manufacture of solid crowns
* Ways to compensate for the shrinkage of alloys when casting fixed structures
* Technology of casting frames of fixed structures, refractory masses
* Manufacturing technology of plastic cladding of combined structures

**Topic 14. Bridges - indications for prosthetics. Design features and biomechanics of bridges**

* Indications for prosthetics with bridges, classification of bridges
* Structural components of bridges, types of supporting elements. Types of the intermediate part depending on the topography of the dentition defect
* Biomechanics of bridges. Requirements for abutment teeth

**Topic 15. Clinical stages of manufacturing stamped-soldered bridges.**  **Laboratory stages of the manufacture of stamped-soldered bridges**

* Indications for prosthetics with stamped-soldered bridges
* Features of preparation of abutment teeth
* Fitting of supporting crowns and method of obtaining a second working imprint
* Checking the design of the bridge, fixation
* Production of working models
* Modeling and casting of the intermediate part
* soldering and solderless technologies for connecting parts of bridges

**Topic 16. Clinical stages of the manufacture of solid metal and combined bridges**

* Indications for prosthetics with solid bridges
* Features of preparation of abutment teeth
* Checking the frame of a solid bridge
* Fitting, occlusive correction, fixation of a solid bridge

**Topic 17.**  **Laboratory stages of the manufacture of solid metal and combined bridges**

* Technology for modeling the reproduction of frames of solid bridges
* Technology of casting bridge frames
* Manufacturing technology of plastic cladding of solid cast combined bridges

**Topic 18.**  **Factors ensuring the fixation of fixed prostheses. Materials for temporary and permanent fixation of orthopedic structures**

* Classification of factors ensuring the fixation of fixed prostheses
* Factors related to abutment teeth
* Factors related to orthopedic structures
* Factors related to fixing materials
* Materials for permanent fixation of fixed structures (zinc-phosphate, polycarboxylate, glass ionomeric, composite cements) – composition, physicochemical properties, indications and methods of application
* Indications for the use of temporary fixation of fixed structures. Materials for temporary fixation of orthopedic structures (zinc-oxideugenol, materials based on calcium hydroxide)

**Topic 19. Errors and complications in prosthetics with artificial crowns and bridges**

* Errors at the stage of examination of patients and planning of the prosthetic structure
* Errors at the stage of teeth preparation
* Errors in obtaining prints and fixing the ratio of jaws
* Errors in the application and fixation of orthopedic structures
* Errors in the laboratory stages of the manufacture of stamped crowns and stamped-soldered bridges
* Errors in the laboratory stages of the manufacture of solid crowns and bridges
* Errors when working with plastic. Types of porosity of plastics

**Module 2. Partially removable dentures**

***Content module 6. Examination of patients with partial defects of the dentition***

***Specific objectives:***

* *conduct examinations with partial defects of the dentition;*
* *explain the complications that occur with partial loss of teeth;*
* *know the indications and contraindications for the use of partial removable dentures;*
* *be able to choose abutment teeth when using partially removable dentures;*
* *know the types of clam lines;*
* *know the methods of fixing partial removable dentures.*

**Topic 1. Examination of patients with partial loss of teeth. Changes in the dentition with partial loss of teeth**

* Basic and additional methods of examination of patients with partial loss of teeth
* Structural and functional changes in the dentition with tooth loss
* Disintegration of the dentition into separate functional groups
* Dentitional deformities
* Occlusive disorders, traumatic occlusion
* Functional overload of hard tissues of teeth and periodontium
* Dysfunction of TMJ and masticatory muscles
* Preparation of the oral cavity for chZP prosthetics

**Topic 2. Constructions of partial removable dentures – indications for prosthetics. Planning the fixation of partial removable dentures. Abutment teeth, clammer lines**

* Types of chZP, their design components, features of the transformation of chewing pressure by different types of chZP
* Indications for prosthetics with different types of chZP (clasp, lamellar with plastic and metal base)
* Requirements for abutment teeth
* Planning of chZP fixation (point, linear, planar), clam lines and their clinical significance
* The concept of anatomical equator and boundary line, support and retention zones of the tooth
* Components of holding and support-holding clams, their location on the tooth and features of the transformation of chewing pressure

**Topic 3. Methods of fixing partially removable dentures**

* The concept of fixation, stabilization, balance of removable dentures
* Mechanical fixing elements in chZP (clams, locking, beam and telescopic fasteners) – classifications, structures, readings
* Biomechanical fixation factors (anatomical retention)
* Physical fixation factors

***Content module 7. Clinical and laboratory stages of manufacturing partial removable plate prostheses***

***Specific objectives:***

* *be able to receive working prints for partial defects of the dentition;*
* *be able to determine the boundaries of partial removable dentures;*
* *be able to determine the central occlusion in the I, II, III groups of defects;*
* *know the rules for setting teeth in partially removable dentures;*
* *know the technological stages of manufacturing partially removable dentures;*
* *be able to check the design of partial removable dentures;*
* *apply partial removable dentures;*
* *explain the phases of adaptation to partial removable dentures;*
* *be able to carry out the correction of partial removable dentures;*
* *analyze the effect of the basis of partial removable prostheses on the oral mucosa.*

**Topic 4. Justification of the construction of boundaries of the bases of partial removable dentures**

* The concept of a prosthetic bed and a prosthetic field
* Anatomical formations of the oral cavity that are important for removable prosthetics
* Suppleness and mobility of the mucous membrane, their consideration for removable prosthetics. Location of the edges of the CHZP basis in the transitional fold area
* Maximum base limits of removable lamellar prosthesis on the upper and lower jaw; ratio with teeth on the jaw
* Variants of base boundaries depending on clinical conditions
* Obtaining working prints for chZP, materials and techniques
* The use of individual printed spoons in the manufacture of chzp, indications

**Topic 5. Determination and fixation of the ratio of jaws in I, II, III groups of defects of the dentition**

* Classification of groups of defects of the dentition according to Betelman, its clinical significance. The concept of central occlusion, the central ratio of the jaws, the occlusal and protetic plane
* Functional characteristics of 1,2,3 groups of defects, stages of determination and fixation of the ratio of jaws
* Ways to determine the central ratio of the jaws
* Methods for determining occlusive height
* Method of fixing central occlusion with occlusion blocks and gypsum blocks
* Manufacturing technology of occlusive rollers
* Method of hot and cold methods of fixing the central ratio using occlusive rollers
* Errors in determining and fixing the ratio of jaws

**Topic 6. Setting up teeth in partially removable dentures**

* Preparation of working models for the manufacture of chZP
* Production of wax reproduction of the basis
* Method of manufacturing bent wire clams
* Dental sets for removable dentures, materials, varieties. Comparative characteristics of porcelain, composite, acrylic teeth
* Rules for the selection of artificial teeth
* Anatomical guidelines for the setting of artificial teeth
* Method of setting artificial teeth in chzp
* Occlusive concepts for partially removable prosthetics

**Topic 7. Checking the design of partially removable dentures**

* Checking the design of the chZP on models
* Checking the design of the chZP in the oral cavity
* Errors that are detected at the stage of checking the design of the CHZP, their causes and elimination

**Topic 8. Manufacturing technology of partial removable prostheses with a plastic basis. Compression and casting pressing of plastics**

* Final modeling of the prosthesis basis
* Production of molds for compression pressing. Methods for plastering reproductions of prostheses in a ditch
* Plastics for the manufacture of bases of prostheses. Classifications, composition, properties. Types of polymerization
* Technology of preparation and packaging of plastics in a ditch, modes of polymerization of plastics, errors
* Equipment for foundry pressing of plastics. Mold manufacturing technology and foundry pressing technique

**Topic 9. Overlapping and correction of partially removable dentures**

* Method of overlapping and primary correction of chZP
* Recommendations for the patient to care for the prosthesis
* Periods of adaptation to removable dentures
* Traumatic prosthetic stomatitis, indications for re-correction of the base and occlusive surface of prostheses

***Content module 8. Clasp prosthetics***

***Specific objectives:***

* *know the indications and contraindications to the use of clasp prostheses;*
* *to carry out comparative characteristics of partial removable and clasp prostheses;*
* *be able to receive work prints;*
* *be able to produce diagnostic models;*
* *analyze the choice of abutment teeth;*
* *know the purpose and tasks of parallelometry;*
* *know the methods of parallelometry;*
* *be able to conduct parallelometry;*
* *know the indications for the use of various types of clackers.*

**Topic 10. Clasp prostheses - design planning depending on clinical conditions. Types of fixing elements**

* Indications for prosthetics with clasp prostheses, conditions in the oral cavity that are necessary for the implementation of clasp prosthetics
* Options for the location of the BP arc in the upper and lower jaw under different clinical conditions
* The choice of abutment teeth for fixing the PSU, requirements, preparation
* Types of fixing elements in clasp prostheses (supporting and holding clams, locking, beam, telescopic fasteners).

**Topic 11. Parallelometry of diagnostic models**

* The concept of the path of introduction of the prosthesis, artificial parallelism of the abutment teeth
* Boundary line, support and retention zones are of practical importance. Boundary line topography options
* Requirements for diagnostic models for parallelometry
* Designs of parallel meters
* The purpose and objectives of parallelometry
* Methods of parallelometry (arbitrary, method of choice, Novak method) – indications, methods
* Calibration of models – technique, practical significance

**Topic 12. Fixation of clasp prostheses. Indications for the use of various types of mechanical fasteners. Support-holding clams**

* Planning fixing elements in clasp prostheses depending on clinical conditions
* Types of support-holding clams, factors affecting the choice of clamer type
* Ney clam system, indications for use
* Classifications of locking fasteners
* Indications and conditions for the use of locking, beam and telescopic fasteners

***Content module 9. Technology of manufacturing clasp prostheses***

***Specific objectives:***

* *know the technological stages of the manufacture of clasp prostheses;*
* *know the composition and properties of duplicate masses;*
* *know the composition and properties of refractory masses;*
* *to carry out a comparative characteristic of metal alloys;*
* *know the technology of casting frames of clasp prostheses;*
* *be able to fit the frame of the clasp prosthesis;*
* *be able to carry out the imposition of a clasp prosthesis;*
* *to carry out comparative characteristics of partial removable prostheses and clasp prostheses;*
* *carry out the correction of clasp prostheses;*
* *provide recommendations to patients on the use of partial removable dentures.*

**Topic 13. Technological stages of manufacturing removable prostheses with a solid metal frame. Duplication of working models**

* Preparing models for duplication
* Duplicate masses – types, composition, application technology
* Equipment for duplication of models
* Method of duplication of models
* Manufacturing of refractory models

**Topic 14. Compensation for shrinkage of alloys during casting. Molding masses. Modeling of wax reproductions of frames of clasp prostheses and prostheses with a metal basis**

* Classification of molding masses, composition, properties, indications for use
* Shrinkage alloy during casting, types. Compensation methods
* Manufacturing of refractory models
* Methods of modeling wax reproduction of frames of clasp prostheses and prostheses with a metal base, modeling materials

**Topic 15. Technology of casting frames of clasp prostheses and prostheses with a metal basis**

* Casting technologies in dentistry. Methods of melting and casting metals
* Metal alloys for the manufacture of frames of clasp prostheses and prostheses with a metal base. Cobalt-chromium alloy – composition, technological and physico-chemical properties, temperature conditions
* Casting systems – types, rules of construction
* Formation of reproduction of the frame in the flask, preparation of flasks for casting
* Errors in casting
* Processing frames after casting

**Topic 16. Checking the design of the clasp prosthesis. Clasp prosthesis application**

* Fitting the PSU frame on models and checking in the oral cavity
* Methods of applying and correcting the clasp prosthesis

**Topic 17. Adaptation to removable dentures, terms of use. Repair and relocation of prostheses**

* Phases of adaptation to removable dentures according to Courland
* Recommended terms of use of various types of chZP. Indications for replacement of prostheses
* Relocation of removable dentures – indications, methods, materials
* Repair of prostheses (replacement of the clamer, addition of a tooth, repair of the basis) is a technology. Causes of basality fracture

**Topic 18. Errors and complications during prosthetics with partially removable dentures.**

* Errors at the stage of inspection and planning of the chZP design
* Errors in receiving prints
* Errors at the stage of fixing the ratio of the jaws and determining the occlusive height
* Errors at the stage of manufacturing the plastic basis
* Errors at the stage of casting denture frames
* Errors in the application and correction of prostheses

**Topic 19. The effect of the bases of removable dentures on the oral mucosa. Prosthetic stomatitis**

* Factors of influence of the bases of prostheses and prosthetic materials on the tissues of the prosthetic bed (insulating effect, mechanical, toxic, allergenic effects)
* Classification of prosthetic stomatitis.
* Traumatic prosthetic stomatitis. Etiology, clinical manifestations, differential diagnosis and treatment
* Toxic prosthetic stomatitis. Etiology, clinical manifestations, differential diagnosis and treatment
* Allergic prosthetic stomatitis. Etiology, clinical manifestations, differential diagnosis and treatment
* Additional laboratory methods for examining patients with prosthetic stomatitis

**4. The structure of the discipline**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Titles of content modules and topics | Number of hours | | | | | | |
| denna form | | | | | | |
| at present | including | | | | | |
| l | See | lab | | Indus | s.r |
| 1 | 2 | 3 | 4 | 5 | | 6 | 7 |
| **Module 1Fixed dentures** | | | | | | | |
| **Content module 1**.  ***Examination of the patient in the clinic of orthopedic dentistry*** | | | | | | | |
| Lecture No1. Examination of patients in the clinic of orthopedic dentistry. Basic and additional methods of examination. | 2 | 2 |  |  | |  |  |
| Topic 1. Examination of the patient in the clinic of orthopedic dentistry. Clinical methods of examination Examination of patients with partial loss of teeth. Changes in the dentition with partial loss of teeth. Additional (special) methods of examination. Preliminary and final diagnosis | 3 |  | 2 |  | |  | 1 |
| **Content module 2.**  ***Clinical analysis of occlusion*** | | | | | | | |
| Lecture No2. Functional anatomy and biomechanics of the dentition. Clinical analysis of occlusion. | 2 | 2 |  |  | |  |  |
| Topic 2. Functional anatomy of the dentition | 4 |  | 2 |  | |  | 2 |
| Topic 3. Biomechanics of the dentition. Functional occlusion | 3 |  | 2 |  | |  | 1 |
| Topic 4. Devices that reproduce the movements of the lower jaw. Articulators - general characteristics | 3 |  | 2 |  | |  | 1 |
| Topic 5. Basics of working with the articulator. Clinical analysis of occlusion | 3 |  | 2 |  | |  | 1 |
| **Content module 3.**  ***Anesthesia in the clinic of orthopedic dentistry*** | | | | | | | |
| Lecture No3. Anesthesia in the clinic of orthopedic dentistry. Classification of anesthetics, indications for use. Indications and methods of anesthesia in the clinic of orthopedic dentistry. | 2 | 2 |  |  | |  |  |
| Topic 6. Anesthesia in the clinic of orthopedic dentistry | 5 |  | 4 |  | |  | 1 |
| Topic 7. Local and general complications of injectable anesthesia. | 5 |  | 4 |  | |  | 1 |
| **Content module 4.**  ***Protesing with artificial crowns*** | | | | | | | |
| Lecture No 4. Indications and clinical and technological stages of manufacturing artificial crowns | 2 | 2 |  |  | |  |  |
| Topic 8. Methods of replacing defects in hard tissues of teeth, orthopedic structures. Artificial crowns – types, indications for prosthetics | 3 |  | 2 |  | |  | 1 |
| Topic 9. Preparation of teeth for artificial crowns – rules, techniques, tools. Protection of vital teeth during and after preparation | 3 |  | 2 |  | |  | 1 |
| Topic 10. Clinical stages of the manufacture of stamped metal crowns. Laboratory stages of the manufacture of stamped metal crowns | 6 |  | 4 |  | |  | 2 |
| Topic 11. Pharmaceutical crowns – indications, manufacturing methods, materials. | 3 |  | 2 |  | |  | 1 |
| Topic 12. Laboratory method for the manufacture of pharmaceutical crowns | 3 |  | 2 |  | |  | 1 |
| **Content module 5.**  ***Bridge podibnot prosthetics*** | | | | | | | |
| Lecture No5. Indications and clinical and technological stages of the manufacture of bridges. | 2 | 2 |  |  | |  |  |
| Topic 13. Clinical stages of manufacturing solid metal and combined crowns. Laboratory stages of the manufacture of solid metal and combined crowns | 4 |  | 2 |  | |  | 2 |
| Topic 14. Bridges - indications for prosthetics. Design features and biomechanics of bridges | 3 |  | 2 |  | |  | 1 |
| Topic 15. Clinical stages of manufacturing stamped-soldered bridges. Laboratory stages of the manufacture of stamped-soldered bridges | 6 |  | 4 |  | |  | 2 |
| Topic 16. Clinical stages of the manufacture of solid metal and combined bridges | 3 |  | 2 |  | |  | 1 |
| Topic 17. Laboratory stages of the manufacture of solid metal and combined bridges | 3 |  | 2 |  | |  | 1 |
| Topic 18. Factors ensuring the fixation of fixed prostheses. Materials for temporary and permanent fixation of orthopedic structures | 5 |  | 4 |  | |  | 1 |
| Topic 19. Errors and complications in prosthetics with artificial crowns and bridges | 3 |  | 2 |  | |  | 1 |
| Final modular control | 2 |  | 2 |  | |  |  |
| **Preparation for the final module control** | 3 |  |  |  | |  | 3 |
| *Independent study of topics that are not included in the classroom plan* |  |  |  |  | |  | 5 |
|  |  |  |  |  | |  |  |
|  |  |  |  |  | |  |  |
| ***Total Module 1*** | **95** | **10** | **50** |  | |  | **35** |
| **Module 2. Partially removable dentures** | | | | | | | |
| **Content module 6.**  ***Examination of patients with partial defects of the dentition*** | | | | | | | |
| Lecture No1. Anatomical and physiological features of the dentition in case of partial loss of teeth. Examination of patients. Design features and comparative characteristics of different types of chZP, indications for use. | 2 | 2 |  |  | |  |  |
| Topic 1. Examination of patients with partial loss of teeth. Changes in the dentition with partial loss of teeth | 3 |  | 2 |  | |  | 1 |
| Topic 2. Constructions of partial removable dentures – indications for prosthetics. Planning the fixation of partial removable dentures. Abutment teeth, clammer lines | 3 |  | 2 |  | |  | 1 |
| Topic 3. Methods of fixing partially removable dentures | 3 |  | 2 |  | |  | 1 |
| **Content module 7. *Clinical and laboratory stages of manufacturing partial removable plate prostheses*** | | | | | | | |
| Topic 4. Justification of the construction of boundaries of the bases of partial removable dentures | 3 |  | 2 |  | |  | 1 |
| Lecture No2. Factors that ensure the fixation of ChZP. Planning of the design of chZP depending on clinical conditions: selection of abutment teeth and fixing elements, boundaries of the basis of lamellar prostheses. determination of the ratio of the jaws in 1-3 groups of defects of the dentition. Setting of teeth in the chZP. Verification of the design of the ChZP | 2 | 2 |  |  | |  |  |
| Topic 5. Determination and fixation of the ratio of jaws in I, II, III groups of defects of the dentition | 4 |  | 2 |  | |  | 2 |
| Topic 6. Setting up teeth in partially removable dentures | 4 |  | 2 |  | |  | 2 |
| Topic 7. Checking the design of partially removable dentures | 3 |  | 2 |  | |  | 1 |
| Topic 8. Manufacturing technology of partial removable prostheses with a plastic basis. Compression and casting pressing of plastics | 3 |  | 2 |  | |  | 1 |
| Topic 9. Overlapping and correction of partially removable dentures | 3 |  | 2 |  | |  | 1 |
| **Content module 8.**  ***Clasp prosthetics*** | | | | | | | |
| Lecture No3. Clasp prostheses - types of fixing elements, options for the location of the arcs of clasp prostheses on the upper and lower jaws. | 2 | 2 |  |  | |  |  |
| Topic 10. Clasp prostheses - design planning depending on clinical conditions. Types of fixing elements | 3 |  | 2 |  | |  | 1 |
| Topic 11. Parallelometry of diagnostic models | 4 |  | 2 |  | |  | 2 |
| Topic 12. Fixation of clasp prostheses. Indications for the use of various types of mechanical fasteners. Support-holding clams | 4 |  | 2 |  | |  | 2 |
| **Content module 9. *Technology of manufacturing clasp prostheses*** | | | | | | | |
| Lecture No4. Technological stages of chZP manufacturing. Duplication of models. Refractory masses. Casting of frames and metal bases. Compression and casting pressing, polymerization of plastics. | 2 | 2 |  | |  |  |  |
| Topic 13. Technological stages of manufacturing removable prostheses with a solid metal frame. Duplication of working models | 4 |  | 2 | |  |  | 2 |
| Topic 14. Compensation for shrinkage of alloys during casting. Molding masses. Modeling of wax reproductions of frames of clasp prostheses and prostheses with a metal basis | 3 |  | 2 | |  |  | 1 |
| Topic 15. Technology of casting frames of clasp prostheses and prostheses with a metal basis | 4 |  | 2 | |  |  | 2 |
| Topic 16. Checking the design of the clasp prosthesis. Clasp prosthesis application | 3 |  | 2 | |  |  | 1 |
| Lecture No5. Imposition and correction of chZP. Relocation and repair of removable dentures. Effect of denture bases on oral tissues. Prosthetic stomatitis. Adaptation to removable dentures. | 2 | 2 |  | |  |  |  |
| Topic 17. Adaptation to removable dentures, terms of use. Repair and relocation of prostheses | 3 |  | 2 | |  |  | 1 |
| Topic 18. Errors and complications in prosthetics with partially removable dentures | 3 |  | 2 | |  |  | 1 |
| Topic 19. The effect of the bases of removable dentures on the oral mucosa. Prosthetic stomatitis | 3 |  | 2 | |  |  | 1 |
| Final modular control | 2 |  | 2 | |  |  |  |
| **Preparation for the final module control** | 4 |  |  | |  |  | 4 |
| *Independent study of topics that are not included in the classroom plan* | 6 |  |  | |  |  | 6 |
| **Total Module 2** | **85** | **10** | **40** | |  |  | **35** |
| **ALL OVER THE WORLD** | **180** | **20** | **90** | |  |  | **70** |
|  |  |  |  | |  |  |  |
| Total hours: 210 with SRS: ECTS credits – 7;  Classroom work – 67%; SRS – 33% |  |  |  | |  |  |  |

1. **Topics of lectures**

|  |  |  |
| --- | --- | --- |
| №  p/n | Topic of lectures | Hours |
| **Module 1 "Fixed dentures"** | | |
| 1 | Examination of patients in the clinic of orthopedic dentistry. Basic and additional methods of examination. Diagnosis | 2 |
| 2 | Anesthesia in the clinic of orthopedic dentistry. Classification of anesthetics, indications for use. Indications and methods of anesthesia in the clinic of orthopedic dentistry | 2 |
| 3 | Functional anatomy and biomechanics of the dentition. Clinical analysis of occlusion. | 2 |
| 4 | Indications and clinical and technological stages of manufacturing artificial crowns | 2 |
| 5 | Indications and clinical and technological stages of the manufacture of bridges | 2 |
| **Total Module 1** | | **10** |
| **Module 2 "Partially removable prosthetics"** | | |
| 1 | Anatomical and physiological features of the dentition with partial loss of teeth. Examination of patients. Design features and comparative characteristics of different types of chZP, indications for use. Pre-trial preparation | 2 |
| 2 | Factors ensuring the fixation of chZP. Planning of the design of chZP depending on clinical conditions: the choice of abutment teeth and fixing elements, the boundaries of the base of lamellar prostheses. Determination of the connection of the jaws in 1-3 groups of defects of the dentition. Staging teeth in chzp. Verification of the ChZP design | 2 |
| 3 | Clasp prostheses - types of fixing elements, options for the location of the arcs of clasp prostheses on the upper and lower jaws. Planning the design of clasp prostheses. Parallelometry | 2 |
| 4 | Technological stages of chZP manufacturing. Duplication of models. Refractory masses. Casting of frames and metal bases. Compression and casting pressing, polymerization of plastics. | 2 |
| 5 | Technological stages of chZP manufacturing. Duplication of models. Refractory masses. Casting of frames and metal bases. Compression and casting pressing, polymerization of plastics. | 2 |
| 6 | ChZP overlay and correction. Relocation and repair of removable dentures. The effect of the basis of prostheses on the tissues of the oral cavity. Prosthetic stomatitis. Adaptation to removable dentures. | 2 |
| **Total Module 2** | | **10** |
| **Just** | | **20** |

1. **Topics of seminars**

The Program on the discipline "Orthopedic Dentistry" does not provide seminars.

**7. Topics of practical classes**

|  |  |  |
| --- | --- | --- |
| Noz/n | The name of the topic is almost a lesson | Number of  Hours |
| **Module 1 "Fixed dentures"** | | |
| 1 | Examination of patients in the clinic of orthopedic dentistry. Clinical methods of examination. Additional (special) methods of examination. Preliminary and final diagnosis. | 2 |
| 2 | Functional anatomy of the dentition | 2 |
| 3 | Biomechanics of the dentition. Functional occlusion | 2 |
| 4 | Devices that reproduce the movements of the lower jaw. Articulators - general characteristics | 2 |
| 5 | Basics of working with the articulator. Clinical analysis of occlusion | 2 |
| 6 | Anesthesia in the clinic of orthopedic dentistry | 4 |
| 7 | Local and general complications of injectable anesthesia. Emergencies at the dental reception | 4 |
| 8 | Methods of replacing defects in the hard tissues of the teeth, orthopedic structures. Artificial crowns – types, indications for prosthetics | 2 |
| 9 | Preparation of teeth for artificial crowns – rules, techniques, tools. Protection of vital teeth during and after preparation | 2 |
| 10 | Clinical stages of manufacturing stamped metal crowns. Laboratory stages of the manufacture of stamped metal crowns. | 4 |
| 11 | Pharmaceutical crowns – indications, manufacturing methods, materials. The direct method of manufacturing pharmaceutical crowns | 2 |
| 12 | Laboratory method for the manufacture of pharmaceutical crowns | 2 |
| 13 | Clinical stages of manufacturing solid metal and combined crowns. Laboratory stages of the manufacture of solid metal and combined crowns. | 2 |
| 14 | Bridges - indications for prosthetics. Design features and biomechanics of bridges | 2 |
| 15 | Clinical stages of manufacturing stamped-soldered bridges. Laboratory stages of the manufacture of stamped-soldered bridges. | 4 |
| 16 | Clinical stages of the manufacture of solid metal and combined bridges | 2 |
| 17 | Laboratory stages inthe manufacture of solid metal and combined bridges | 2 |
| 18 | Factors ensuring the fixation of fixed prostheses. Materials for temporary and permanent fixation of orthopedic structures | 4 |
| 19 | Errors and complications in prosthetics with artificial crowns and bridges | 2 |
| 20 | Final modular control | 2 |
| **Total Module 1** | | **50** |
| **Module 2 "Partially removable dentures"** | | |
| 1 | Examination of patients with partial loss of teeth. Changes in the dentition with partial loss of teeth | 2 |
| 2 | Constructions of partial removable dentures – indications for prosthetics. Planning the fixation of partial removable dentures. Abutment teeth, clammer lines | 2 |
| 3 | Methods of fixing partially removable dentures | 2 |
| 4 | Justification of the construction of boundaries of the bases of partial removable dentures | 2 |
| 5 | Determination and fixation of the ratio of jaws in I, II, III groups of defects of the dentition | 2 |
| 6 | Setting up teeth in partially removable dentures | 2 |
| 7 | Checking the design of partially removable dentures | 2 |
| 8 | Manufacturing technology of partial removable prostheses with a plastic basis. Compression and casting pressing of plastics | 2 |
| 9 | Overlapping and correction of partially removable dentures | 2 |
| 10 | Clasp prostheses - design planning depending on clinical conditions. Types of fixing elements | 2 |
| 11 | Parallelometry of diagnostic models | 2 |
| 12 | Fixation of clasp prostheses. Indications for the use of various types of mechanical fasteners. Support-holding clams | 2 |

|  |  |  |
| --- | --- | --- |
| 13 | Technological stages of manufacturing removable prostheses with a solid metal frame. Duplication of working models | 2 |
| 14 | Compensation for shrinkage of alloys during casting. Molding masses. Modeling of wax reproductions of frames of clasp prostheses and prostheses with a metal basis | 2 |
| 15 | Technology of casting frames of clasp prostheses and prostheses with a metal basis | 2 |
| 16 | Checking the design of the clasp prosthesis. Clasp prosthesis application | 2 |
| 17 | Adaptation to removable dentures, terms of use. Repair and relocation of prostheses | 2 |
| 18 | Errors and complications during prosthetics with partially removable dentures. | 2 |
| 19 | The effect of the bases of removable dentures on the oral mucosa. Prosthetic stomatitis | 2 |
| 20 | Final modular control | 2 |
| **Total Module 2** | | **40** |
| **Just** | | **90** |

**8. Topics of laboratory classes -** *not provided for by the curriculum.*

**9. Independent work**

Types of independent work (SRS) and its control

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **No s/**n | **THEME** | **Number of**  **Hours** | | | **View**  **Control** |
| 1 | **Preparation for practical classes *-*** theoretical preparation and development of practical skills | 23 | | | Current control in practical classes |
| 2 | **Elaboration of topics that are not included in the classroom plan:**  The history of the development of orthopedic dentistry  The contribution of domestic scientists to the development of orthopedic dentistry | 2,5  2,5 | | | Final modular control |
| 3 | **Preparation for the final module control** | 3 | | |
| **Total Module 1** | | **35** | | |  |
|  |  | |  |  | |
| **1** | **Preparation for practical classes** – theoretical training and mastering practical skills | | 25 | Current control in practical classes | |
| **2** | **Independent study of topics that are not included in the classroom plan:** | | **2**  2  **2** | Final modular control | |
| **3** | **Preparation for the final module control** | | **4** |
| **Total Module 2** | | | **35** |  | |

**10. Individual tasks.**

***An individual educational and research task (INDZ) is a type of extracurricular independent work of a student of an educational, educational and research or design nature, which is used in the process of studying the program material of the training course and is completed together with the final exam or credit in this academic discipline.***

**Purpose.** The self doesnot study part of the program material, systematization, deepening, generalization, consolidation and practical application of the student's knowledge from the training course and the development of independent work skills.

**Content.**  INDZ is a completed theoretical or practical work within the curriculum of the course, which is carried out on the basis of knowledge, skills and abilities acquired in the process of lectures, seminars, practical and laboratory classes, covers several topics or the content of the training course as a whole.

**Structure** (indicative): introduction (indicate the topic, purpose and objectives of the work and its main provisions); theoretical justification (presentation of basic theoretical provisions, laws, principles, algorithms, etc., on the basis of which the task is performed); methods (when performing practical, calculated, modeling works); the main results of work and their discussion (statistical or qualitative results of work and their discussion are presented (statistical or qualitative results of work are presented, diagrams, drawings, models, descriptions, systematized abstract information and its analysis, etc.); list of references.

**The procedure for submitting and protecting the** INDZ: a report on the implementation of the INDZ is submitted in the form of a fastened notebook (abstract) with the title page of the standard sample and internal content indicating all positions of the content of the task (up to 10 sheets); INDZ is submitted to the teacher; the assessment for the INDZ is set at the final lesson (practical, seminar) from the course on the basis of the teacher's preliminary acquaintance with the content of the INDZ. Possible protection of the task by oral report of the student on the completed work (up to 5 minutes); The proportion of INDZ in the overall assessment in the discipline is estimated within a certain module, but not more than 12 points.

INDZ contains an element of search, partly research work and acts as a factor in involving the student in research activities, which can be continued through the implementation of master's work, etc., forms the skills of professional training of a doctor.

**Distribution of points for INDZ in the discipline "Orthopedic Dentistry"**

|  |  |  |
| --- | --- | --- |
| No s/n | Module name | Maximumnumber of points  by INDZ |
| 1 | Module 1 "Fixed dentures" | 6 |
| 2 | Module 2 "Partially removable prosthetics" | 6 |
|  | Just | 12 |

**11. Teaching methods.**

The use of general and special innovative methods for training in the discipline "Orthopedic Dentistry". *General methods* (narration, lecture, illustration, conversation) and with*personal methods that* depend on the specifics of studying the discipline.

***Problem-search methods*** used in the preparation of future doctors are: active (problem solving, display of schematic drawings); heuristic (conversation, discussion, discussion); search (course design); research (scientific work, RESEARCH); methods of problem presentation of educational material.

***Logical methods*** include inductive (from the particular to the general); deductive (from general to partial); analysis, synthesis, generalization, comparison, abstraction – important for the formation of the foundations of clinical thinking in ophthalmology.

***Methods of forming interest in*** learning are divided into methods of intellectual collective activity and imitation. The basis of the methods of intellectual collective activity is the presence of collective thought, cognitive dispute with high activity of students, discussions, discussions. simulation exercises, analysis of production situations, method of training, game design, business games, method of distribution of roles are especially relevant in clinical departments.

Important in the training of doctors are ***the methods of self-study,*** including ***theethod "learning from the text of the module"***, which involves the sequential actions of the student for the solid assimilation of educational material. methodological support of the content of the module. If the structure of the module is individualized in relation to each student, the content of the module is studied according to the recommended (individualized) structure developed by the department.

Thus, training focuses on the acquisition by students of specific skills, knowledge and abilities, competencies necessary in future professional activities in the discipline "Orthopedic Dentistry".

The types of educational activities of the students according to the program are:

1) lectures - thenames of the lecture course reveal the problematic issues of the relevant solutionsof orthopedic dentistry. A lecture should be constructed as "problematic", that is, it is not a simple copying of well-known publicly available material.

2) practical classes - according to the method of their organization are clinical, and include: examination of patients in a clinical office using dental equipment and tools; analysis of diagnostic models of patients with different types of pathology of the dentition, choice of methods for restoring defects of teeth and dentition;

3) inthe development of practical skills by students during the clinicalreception of thematic patients. Students in practical classes, during the clinical reception of patients fill out the medical record of the examined patient, and it is also recommended to fill out other reporting documentation (diary of the doctor's work, outfits for dental work, what);

4) solving situational problems (evaluation of diagnostic models, occludograms, X-ray examination data, etc.), which have a clinical focus, as well as solving testsituational problems (format A);

5) laboratory classes - held in the dental laboratory, where students acquire skills according to the topics of practical classes with the involvement of dental technicians and special equipment;

6)sa mostial work of students (SRS) is a type of activity that a student performs independently, outside the educational institution: independent study of homework, (preparation of notes of practical classes, drawing up diagrams, tables, wax modeling, that is).

7) individual research tasks (INDZ) – allows students to show their analytical, research, creative abilities. This from work is provided to students who want to increase the score of their current studies. For each module, indicative topics are planned, which can be presented in the form of reports, presentations, publications, etc. The teacher evaluates the student's work done with a certain number of points, but not more than 12 points.

***The current educational activities of students*** are monitored in practical classes in accordance with specific goals.

It is recommended to use the following meansof diagnosing the level of training of students: tests, solving situational problems, examining thematic patients, establishing a diagnosis, planning the volume of the examination, interpreting their resultin; practicing practical skills and abilities.

***The final control of mastering the modules*** is carried out upon completion of the study of the module. Assessment of the student's progress in the discipline is rating and is set on a multi-point scale as an arithmetic average assessment of the assimilation of the relevant modules and is determined by the ECTS system and the traditional scale adopted in Ukraine.

Terms of drawing up and reassembly of the final modular control.

* compilation – at the main training session on the discipline;
* re-folding – within 20 days after the completion of the module;
* rescheduling – within 10 days after 1 rescheduling.

**12. Control methods.**

Forms of control and evaluation system are carried out in accordance with the requirements of the Temporary Instruction for evaluating the educational activities of students in the implementation of the credit-modular system of organization of the educational process" (letters of the Ministry of Health of Ukraine dated 16.062005 No 08.01-22/1258, dated 21.01.2008 No 08.01-22/65).

Assessment is ONE of the final stages of a student's learning activities and determining academic performance. The evaluation procedure and methodology significantly affect the final results, the possibility of analysis and the statistical reliability of assessments. Therefore, when evaluating, it is necessary to give preference to standardized methods: testing, structured written works, structured according to the procedure for controlling practical skills in conditions that are close to real. curriculum of the relevant academic discipline.

The grade in the discipline is set as the average of the grades for the modules into which the discipline is structured.

The score for the module is defined as the sum of the assessments of current educational activities (in points) and the assessment of the final module control (in points), which is set when assessing theoretical knowledge and practical skills in accordance with the lists determined by the program of the discipline.

The maximum number of points that a student can score when studying each module is 200, including for current educational activities - 120 points, according to the results of the final module control - 80 points.

Thus, the ratio between the results of the assessment of current educational activities and the final module control of 60% to 40% is chosen.

**The score for the module is defined as the sum of the assessments of current educational activities (in points) and the assessment of the final module control (in points), which is set when assessing theoretical knowledge and practical skills in accordance with the lists determined by the program of the discipline.**

***The maximum number of points awarded to students when mastering each module (credit) is 200, including for current academic activities – 120 points (60%), according to the results of modular final control – 80 points (40%).***

***Current control*** is carried out at each practical lesson in accordance with specific goals on each topic.

***Evaluation of current educational activities:***

The weight of each topic within the same module should be the same, but may be different for different modules of the same discipline and is determined by the number of topics in the module. Evaluation of students' current academic activities is described in the working curriculum of the discipline.

***Evaluation of an individual educational and research task:***

The number of points for the implementation of the INDZ depends on the volume and significance. These points are added to the sum of points scored by the student for current academic activities.

Evaluation of students' independent work, which is provided for in the topic along with classroom work, is carried out during the current control of the topic at the relevant classroom lesson. Evaluation of topics that are submitted only for independent work and are not included in the topic of classroom training sessions is controlled by the final modular control.

**13. Distribution of points that students receive**

**Accrual of points for current educational activities in the study of the discipline "orthopedic dentistry" for the III courseand**

**(Module 1, Module 2,)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Module number, quantity**  **Educational**  **hours/**  **ECTS** credits | **Keel-**  **bone**  **content**  **Modules** | **Keel-**  **bone**  **prak-tic**  **classes/ topics in the module** | **Conversion to points of traditional grades** | | | | | **Maximum/**  **minimum quantity**  **points for the module** |
| **Traditional estimates** | | | | **Points for**  **viko-**  **Nannya**  **indivi-**  **Dual nogo**  **task**  **(INDZ)** |
| **«5»** | **«4»** | **«3»** | **«2»** |
| **Module 1**  **105/3,5** | **5** | **20/19** | **6** | **5** | **3** | **0** | **6** | **19\*6=114 /**  **19\*3= 57** |
| **Module 2**  **105/3,5** | **4** | **20/19** | **6** | **5** | **3** | **0** | **6** | **19\*6=114 /**  **19\*3= 57** |

**14. Methodological support**

1. Educational and professional training program for a specialist in the specialty 7.12010005 "Dentistry", direction of training 1201 "Medicine".

2. Educational and qualification characteristics of a specialist in the specialty 7.12010005 "Dentistry", the direction of training 1201 "Medicine".

3. Recommendations for the development of programs in academic disciplines (Form No H-3.03 . Letter of 4.06.2014 No. 23-01-9/112 recommended by the Ministry of Health of Ukraine).

4. Methodical recommendations for teachers for practical classes.

5. Methodical recommendations for students for practical classes.

6. Methodical recommendations for independent work of students.

7. Normative and methodical documents.

8. Visual aids.

9. Demonstration materials, instructions for the use of technical means of training (equipment for mastering theoretical material, educational films, video materials).

10. Test tasks of format A.

**15. Recommended literature**

**Basic literature**

1. Klemin V.A. Orthopedic dentistry. Uchebnoe reforye /V.A.Klemin, V.E.Zhdanov. – K.: VSI "Medicine", 2010. -224p. Recommended by the Ministry of Education and Science of Ukraine as an educational aid for students of high medical education instituted IV level of accreditation LETTER No 1 / 11-10347 dated 09.11.2010.
2. Makeev V.F., Stupnitsky R.M. Theoretical foundations of orthopedic dentistry (textbook). – Lviv: Danylo Halytsky LNMU, 2010, -394 p.
3. Nespryadko V.P., Rozhko M.M. Orthopedic dentistry. Kyiv, Book Plus, 2003.
4. Chulak L.D., Shuturminsky V.G. Clinical and laboratory stages of the manufacture of dentures. Odessa. Odessa Medical University, 2009, 318s.
5. Non-necessary help in dentistry / V.A.Klemin, A.V.Pavlenko, V.N.Arendaryuk and dr. Ed. V.A.Klemina. –Donetsk: Izdatel Zaslavsky A.Yu., 2011. -144p.
6. Rozhko M.M., Nespryadko V.P., Mykhailenko T.N. and others. Dental prosthetics technika. – K., Book Plus, 2006. – 544 p.
7. Ishchenko P.V., Klomin V.A., Katchalov R.Kh., Likhota A.M. Military orthopedic dentistry. – K.: VSV "Medicine". -2013. -312p.
8. Collection of algorithms of practical skills and abilities for a practically oriented state exam in the specialty 7.110106 "Dentistry": Textbook / L.D. Chulak, K.M. Kosenko, A.G. Gulyuk and others; Zag. Ed. L.D.Chulaka. – Odessa: Odessa. State. Honey. Un-t, 2004. – 264 p. – Ros. language.
9. Flis P.S., Bannik T.M.Technique for the manufacture of removable dentures. – K.: Medicine. – 2008. – 254.
10. Nespryadko V.P., Kuts P.V. Dental implantology. Fundamentals of theory and practice. – Kharkiv: WFP "Kontrakt", 2009. – 292.

**Further reading**

1. Varava G.M., Strelkovsky K.M. Technique for the manufacture of maxillofacial prostheses. - K., 1992.
2. Levytov A.N., Rubanenko V.V., Korol M.D. Chelyustno-facial orthopedics: a course of lectures.- Poltava, 1995. - 80 p.
3. Napadov A.L. Articulation and prosthetics in dentistry.- K.: Zdorovya, 1984.
4. Fundamentals and Deontology in Dentistry. Help for Students and Students /Edited by G.P. Ruzyna. –Vinnitsa: New Book, 2008. -120p.
5. Maevski S.V. Dental gnatophysiology. Norms of occlusion and function of the dental system / Maevski S.V. – Lvov: GalDent. – 2008. -144p.
6. Klemin V.A. Dental crowns from polymeric materials. –M.:MED Press Information, 2004. -176p.
7. Morphofunctional and clinical evaluation of teeth with defects of solid weaves / V.A.Klemin, A.V.Borysenko, P.V.Ishchenko. - M.: MED Press Information, 2003. –111 pp.
8. Aesthetic aspects of restorative dentistry (monography) / V.N.Shabanov, A.P.Pedorets, O.V.Shabanov, V.A.Klemin. Elista: ZAORNPP "Jingar", 2010. -111p.
9. Trouble V.I. Pathological abrasion of hard tissues of teeth and the basic principles of its treatment (Educational and methodical manual). – K.: OJSC "Publishing House "Kyivska Pravda", 2002. – 96 p.
10. Borysenko A.V., Nespryadko V.P. Composite filling and facing materials. Practical complicity. – Kyiv, Book Plus, 2002. – 221 p.
11. Vadalyan H.A. Treatment of fractures of the chest and bones of the facial skeleton: Ucheb. complicity. -1984.
12. Varava G.M., Strelkovsky K.M. Technique for the manufacture of maxillofacial prostheses. - K., 1992.
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14. Gitlan E.M., Mole M.K. Manual of clasp prosthetics. – Kyiv: Health, 2001. – 140 p.
15. Gumetskyi R.A., Rozhko M.M., Zavadka O.E., Skrypnikov P.M. Complications of local anesthesia in the maxillofacial area: Manual in 3 vols. – Lviv: Ivano-Frankivsk: Poltava: Publishing House "Nautilus", 2002. – 231 p.
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17. Korol M.D., Korobeynikov L.S., Kindiy D.D., Yarkovyi V.V. Ozhubeyska O.D. Tactics of curation of patients in the clinic of orthopedic dentistry. Poltava: Astraya, 2003 – 52 p.
18. Korol M.D., Korobeynikov L.S., Kindiy D.D., Yarkovyi V.V. Workshop on Orthopedic Dentistry. Part II. Poltava: PE "Formika", 2002. – 168 p.
19. Levytov A.N., Rubanenko V.V., Korol M.D. Chelyustno-facial orthopedics: a course of lectures.- Poltava, 1995. - 80 p.
20. Khvatova V.A. Diagnostics and treatment of the initiated functional occlusion of N. Novgorod. - 1996. - 275p.
21. Gross M.D., Matthews J.D. Normalization of occlusion: Per.s eng.. – M.: Medicine, 1986, 288 p.
22. Abakarov S.I.. Modern constructions of non-existent dental proteases.- M.: Medicine, 1994.
23. Kalinina N.V., Zagorsky V.A. Prosthetics with full rubbing of teeth. - Medicine, 1990.
24. Napadov A.L. Articulation and prosthetics in dentistry.- K.: Zdorovya, 1984.
25. Surov O.N. Dental prosthetics on implants.M., Medicine, 1993, -208s.
26. Lebedenko I.Yu., Peregudov A.B., Glebova T.E., Telescopic and castle creplenia of dental protezos. - Mosca, 2005. – 336 p.
27. Schwartz A.D. Whole-cast (bugle) prostheses. – Moscow, 2005. – 70 p.
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29. Abolmasov N.N. Collecting tooth grinding. - Smolensk, 2004. – 79 p.
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31. Zhulev E.N. Necъemnye prostheses. Theory, clinic and laboratory technician.- N/Novgorod, 1995.
32. Nidzelskyi M.Y. Mechanisms of adaptation to dental prostheses. – Poltava: LLC "Firm "Techservice", 2003. – 116 p.
33. Occlusion and clinical practice / ed. I. Klineberg, R.Jaeger; Lane. s English; Pod obshch.ed. M.M.Antonyka. – M.: MEDpress-inform, 2006. – 200 p.
34. Bernard Tuati, Paul Miara, Dan Netenson. Aesthetic dentistry and ceramic restoration. Lane. with English. – M.: Izdatelsky Dom "Higher Education and Science", 2004. – 448 p.
35. Kryspin B.D., Hevlett E.R., Joe Y.H. Modern aesthetic dentistry. Practical foundations. Lane. s English; Ed. T.F.Vinogradova. – Izd-vo "Quintessence", 2003 – 303 p.
36. Bida V.I. Replacement of defects in the dentition with fixed structures of dentures. Lecture. – Kyiv, 2001. – 26 p.
37. Dentures. Educational and methodical aid for foreign students of the Faculty of Dentistry // Pomaynitsky V.G., Fastovets E.A. : Dnepropetrovsk, OK "Printer", 2004. – 60s.
38. Fundamentals and Deontology in Dentistry. Help for Students and Students /Edited by G.P. Ruzyna. –Vinnitsa: New Book, 2008. -120p.
39. Maevski S.V. Dental gnatophysiology. Norms of occlusion and function of the dental system / Maevski S.V. – Lvov: GalDent. – 2008. -144p.

**16. Information resources**

* Official websites of the President of Ukraine
* Of the Verkhovna Rada of Ukraine,
* Ministry of Education and Science,
* Ministry of Health,
* educational portals of higher medical educational institutions of Ukraine,
* sites of specialized departments

### 17. Form of final control of learning success

**Final modular control**

The final module control is carried out upon completion of the study of all topics of the module in the last control lesson from the module.

Students who do not have academic debt, have completed all types of work provided for in the curriculum and when studying the module have scored a number of points not less than the minimum

The form of the final modular control is standardized and includes 1) solving test problems of format A; 2) control of theoretical training; 3) control of practical training.

**Regulations for the final modular control**

Control measures during PMK in orthopedic dentistry occur in three stages:

**Stage 1** - test control of knowledge

Students give answers to standardized test tasks (on paper or electronic media) that include 10 tests (20 minutes). Each task has only one correct answer out of five (format A).

\*Students who have given less than 60% of the correct answers to test tasks are not allowed to compile the theoretical part of the PMK.

**Stage 2 -**  oral questioning.

Each student is offered three questions from the list of control questions to the PMK; mandatory including questions from the sections:

* Functional anatomy or biomechanics of the dentition
* Clinical and laboratory stages of orthopedic treatment of diseases of the dentition
* Dental Materials Science

**Stage 3** - assessment of practical skills

It is carried out in accordance with the approved algorithm of practical skills during the clinical reception of patients, or in conditions that are close to real - on phantoms, visual aids, diagnostic models. It can be carried out at the last practical lesson preceding the PMK.

For each stage (performance of test tasks, oral answers and practical skills), the student is given a separate grade, which is converted into points of the ECTS system

**Criteria for evaluating student performance during the final module control**

The grade given to each student at the final module control is cumulative, and consists of points awarded for the performance of practical skills, answers to standardized test tasks and oral answers to control questions.

**The "excellent" grade** is received by a student who gave at least 90% of the correct answers to test tasks, answered oral questions without errors, correctly demonstrated the necessary practical skills, that is, comprehensively and deeply mastered the program material of the module, fully possesses theoretical knowledge and practical skills, solves situational problems without errors.

**The "good" grade** is received by a student who gave at least 70% of the correct answers to test tasks, made some minor mistakes in answering oral questions, demonstrated the necessary practical skills, but not in full, and adequately solves situational problems.

**The grade "satisfactorily"** is received by a student who has given at least 60% of the correct answers to test tasks, makes significant mistakes in answering oral questions, demonstrates an insufficient level of mastery of practical skills and does not fully solve situational problems.

**The grade "unsatisfactory"** is received by a student who has given less than 60% of the correct answers to test tasks, does not give answers to oral questions or makes gross mistakes, is not able to demonstrate practical skills and cannot give correct interpretation of their application, cannot solve situational problems

***Criteria for evaluating student performance during the final module control***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Score** | *Stage 1* **points** | *Stage 2* | *Stage 3* | **Total score for PMK** |
| **Test control,** | **Oral response, points** | **Practical skills, points** |
| ***"excellent"*** | (90-100% correct answers) –  30 points | 46 points | 4 points | ***70-80 points – PMK credited*** |
| ***"good"*** | (70-80% correct answers) –  23 points | 40 points | 3 points | ***60-69 points***  ***PMK credited*** |
| ***"satisfactorily"*** | (60% correct answers) -  15 points | 33 points | 2 points | ***50-59 points***  ***PMK credited*** |
| ***"unsatisfactory"*** | 0 points | 0 points | 0 points | ***less than 50 points – PMK not credited*** |

**Final modular control PMK) is considered credited if the student scored at least 50 points. The maximum number of points of the final module control is 80 points. The score for the module is set only in ECTS** points

### 17. Tools for diagnosing learning success

Points in disciplines are independently converted both into the ECT8 scale (in the relevant dean's offices) for entering Zyriyetepi (appendix to the international diploma) and into a four-point scale - "5", "4", "C", "2" (in the departments).

Students studying in one specialty, taking into account the number of points scored in the discipline, are ranked in the dean's offices on the ECTB scale as follows:

|  |  |
| --- | --- |
| ECT8 score | Statistical indicator |
| And | Top 10% of Students |
| Into | Next 25% of students |
| C | Next 30% of students |
| Would | Next 25% of students |
| E | Last 10% of students |

Ranking with the assignment of grades "A", "B", "C", "B", "E" is carried out for students of this course who study in one specialty, and have successfully completed the study of the discipline.

Grades in the discipline RC, P ("2") are given to students who are not enrolled in at least one module in the discipline after completing its study.

The RC grade is given to students who have scored the minimum number of points for current academic activities, but who are not credited with the final module control. This. the category of students has the right to re-pass the final modular control according to the approved regulations. Reassembly of the final modular control is allowed no more than two times.

Grade P is given to students who have attended all classroom classes from the module, but have not scored the minimum number of points for current educational activities and are not admitted to the final module control. This category of students has the right to re-study the module.

Points in the discipline for students who have successfully completed the discipline program are converted at the department into a traditional four-point scale according to absolute criteria as shown in the table below.

|  |  |
| --- | --- |
| Points in the discipline | Score on a four-point scale |
| from 170 to 200 points | 5 |
| from 140 to 169 points | 4 |
| from 139 points to the minimum number of points that a student must score in the discipline | 3 |
| below the minimum number of points a student must score | 2 |