



FACULTY OF STOMATOLOGY
STUDY PROGRAM 0911.1 STOMATOLOGY
CHAIR OF STOMATOLOGICAL PROPAEDEUTICS "PAVEL GODOROJA"

APPROVED

at the meeting of the Committee for Quality
Assurance and the evaluation of the Curriculum
Faculty of Stomatology

Minutes No. 1 of 22.09.2020

Committee president, PhD., DMS.,

Associate professor

Stepco Elena

APPROVED

at the Council meeting of the Faculty of
Stomatology

Minutes No. 2 of 30.09.2020

Dean of Faculty of Stomatology,

PhD., DMS., Associate professor

Solomon Oleg



APPROVED

at the meeting of the chair of Stomatological Propaedeutics

„Pavel Godoroja”

Minutes No. 3 of 18.09.2020

Head of chair, PhD., DHMS., Associate professor

Uncuta Diana

CURRICULUM

DISCIPLINE: MANUFACTURING TECHNOLOGY OF FIXED PROSTHESES

Integrated studies

Type of course: **Compulsory discipline**

Chișinău, 2020



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I. PRELIMINARIES

- General presentation of the discipline: place and role of the discipline in the formation of specific competencies for professional development program/specialty.*

"The manufacturing technology of fixed prostheses" is a compartment of the stomatology including currently the nomenclature of prosthodontist. The manufacturing technology of fixed prostheses is essential and necessary both for training the prosthodontist and for other specialties of the modern stomatology.

In this way students will be trained to study various diseases of the stomatognathic system whose rehabilitation will be carried out by fixed prostheses. At the basis of the discipline will be also discussed the principles for preparation of carious cavities and indirect restoration techniques. The latter will enable students to acquire modern manufacturing technologies of micro-prostheses including inlays, onlays and pinlays and of various types of complete crowns. Particular attention is given to clinical and technical manufacturing stages of these micro-prostheses that will cause the student to work successfully in rehabilitation of patients in the clinical stage. This discipline includes also the manufacturing technology of dental bridges needed in the therapy of partially edentulism which is so important for the restoration of many functions of the stomatognathic system. So, various diseases of the stomatognathic system require a complex therapy in which the application of prosthetic procedures has a primary role in the prevention of periodontal diseases and temporomandibular disorders.

The aim (mission) of curriculum in professional training

The manufacturing technology of fixed prostheses aims to build basic knowledge of the future dentists to ensure, functionally and morphologically, proper prosthetic rehabilitation, observing all clinical and laboratory stages. Therefore, the manufacturing technology of fixed prostheses described in the framework of the discipline will enable students to acquire skills for ensuring a safe and effective procedure in the treatment of patients, which will lead to the raising of high improvement level of their life quality. However, extensive training of the future specialist will enable him/her to work professionally at contemporary level.

- Discipline teaching languages:* Romanian, Russian and English.
- Beneficiaries:* 2nd year students, Faculty of Stomatology.

II. DISCIPLINE ADMINISTRATION

Discipline code		S.03.O.028	
Discipline name		Manufacturing technology of fixed prostheses	
Responsible for discipline		Bajurea Nicolae, PhD., DMS., Associate Professor Uncuța Diana, PhD., DHMS., Associate Professor, Chair of the Department	
Year	II	Semester	III
Total number of hours, including:			150
Lectures	17	Practical courses	17
Seminars	34	Individual work	82



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Evaluation form

E

Number of credits

5

III. THE TRAINING OBJECTIVES OF THE DISCIPLINE

- *At the level of understanding and knowledge:*

- ✓ to know the types of dental prostheses and their purpose;
- ✓ to define dental crown defects and to understand the methods of prosthetic treatment;
- ✓ to know the manufacturing techniques of micro-prostheses;
- ✓ to understand the clinical and laboratory stages for manufacturing metal crowns;
- ✓ to know the casting process of metals and alloys, as well as casting machines;
- ✓ to know the classical and modern manufacturing methods of physiognomic acrylic Jacket and composite crowns;
- ✓ to know the manufacturing technology of physiognomic full-ceramic crowns;
- ✓ to know the manufacturing stages of mixed metal-ceramic crowns;
- ✓ to know the manufacturing stages of mixed metal-acrylic crowns;
- ✓ to know the types of post and core crowns and manufacturing stages;
- ✓ to know the concept of partially edentulism and the types of dental bridges;
- ✓ to understand the manufacturing technology of full cast dental bridges;
- ✓ to understand the manufacturing technology of acrylic dental bridges;
- ✓ to understand the manufacturing technology of full ceramic dental bridges;
- ✓ to understand the manufacturing technology of metal-acrylic and metal-ceramic dental bridges;
- ✓ to know the process of finishing and processing of full cast dental bridges.

- *Application level:*

- ✓ to be able to determine the clinical, morphological and functional aspects of crown dental defects;
- ✓ to be able to make preparation cavities for intra-coronal restoration;
- ✓ to be able to make preparation abutments for metal crowns;
- ✓ to be able to shape the wax pattern of metal crowns;
- ✓ to be able to describe methods for casting process of metals and metal alloys;
- ✓ to be able to describe the relationship between metal and ceramics as well as the connection between metal and acrylic;
- ✓ to be able to make preparation of abutments for physiognomic crowns;
- ✓ to be able to argue the need for gingival marginal design and its preparation;
- ✓ to be able to make preparation of the canal for a dowel core;
- ✓ to be able to describe symptoms, clinical forms of partially edentulism;
- ✓ to be able to make preparation of abutment teeth for full cast dental bridges and wax pattern of future dental bridge;
- ✓ to be able to make the processing and finishing of dental bridges.

- *Integration level:*

- ✓ to appreciate the quality of cavity preparation for intra-coronal restorations;
- ✓ to appreciate the quality preparation of teeth for crowns;
- ✓ to appreciate the wax pattern shape of the future crown;
- ✓ to appreciate the quality of abutment teeth preparation for manufacturing dental bridges;
- ✓ to appreciate the wax pattern shape of full cast dental bridges;
- ✓ to allocate the necessary instruments depending on their purpose;



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- ✓ to ensure compliance with professional ethics and deontology;

IV. PRECONDITIONS AND EXIGENCIES

Knowing of fixed dental prostheses and prosthetic treatment methods. Knowing of therapeutic and prophylactic treatment of these prostheses. Knowing and differentiation of dental defects. Knowing of techniques and manufacturing stages of intra-coronal restorations. Learning the principles for the preparation of cavities for extra-coronal restoration. Knowing the wax pattern modeling for metal crowns. Knowing of manufacturing sprue channels as well as the casting itself. Knowing of methods and manufacturing steps for physiognomic crowns. Understanding modern manufacturing technologies for ceramic crowns. Understanding of the particularities of teeth preparation for mixed crowns (metal-ceramic, metal-acrylic). Knowledge of teeth preparation with endodontic problems in case of manufacturing of replacement crowns. Knowledge of etiology, symptoms, clinical forms of partially edentulism. Acquiring the manufacturing technology for full cast dental bridges. Knowing of manufacturing technology for physiognomic dental bridges. Acquiring the manufacturing technology for mixed dental bridges. Acquiring the finishing and polishing technology of dental bridges.

V. THEMES AND ORIENTATIVE DISTRIBUTION OF HOURS

Nr. d/o	THEME	Number of hours			
		Cours es	Semi- nars	Pra- ctice	Indivi dual
1.	Dental prostheses. Description. Classifications. Purpose and treatment methods. The concept of dental prostheses, appliances and prosthetic appliances. The classification of dental prostheses by Rumpel, Oksman, Betelman according on material used, manufacturing methods, fixation method, physiognomic aspect. Prostheses with dental-periodontal support. Prostheses with mucous-bony support. Prostheses with mixed support. Methods of prosthetic treatment.	1	2	1	5
2.	Crown dental defects. Clinical, morphological and functional aspects. Methods of prosthetic treatment. Feature of crown dental defects. Classification of crown dental defects by Black. Restoration techniques of dental crowns. Dental restorative materials.	1	2	1	5
3.	Inlay, onlay, pinlay, veneers. Manufacturing techniques. Test control. Classification of intra-coronal restorations: by the aim, material used, method of manufacturing. Clinical and laboratory stages for manufacturing the intra-coronal restoration through direct, indirect, and mixed method. Technique of ceramic intra-coronal restorations. Manufacturing technique of acrylic resin intra-coronal restorations. The requirements to the prepared cavity under intra-coronal restorations. Construction features of partial crowns: 3/4, 4/5, 7/8. Retentive features of partial crowns with and without retained-pins. Advantages and indications for partial crowns. Contraindications for partial crowns.	1	2	1	5
4.	Full cast metal crown. Descriptions. Classifications. Requirements. Clinical and laboratory stages for manufacturing full cast metal crowns. Modeling technique of crown model with controlled and uncontrolled	1	2	1	5



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Nr. d/o	THEME	Number of hours			
		Cours es	Semi- nars	Pra- ctice	Indivi dual
	thickness. Clinical and laboratory stages of manufacturing full cast crowns. Wax varieties used in making full cast crowns. Modeling technique of the wax pattern for full cast crown with uncontrolled thickness. Modeling technique of wax pattern of full cast crown with controlled thickness. Required abrasive tools for grinding and polishing metal crowns.				
5.	Casting process of metals and alloys. Types of sprue channels. Types of investments and investment materials used. Casting technique. Casting machines. Metal casting methods. Characteristic. Formation of the mold. Instruments, materials and equipment needed. Making the sprue channels. Manufacturing method. Wax elimination or burn out procedure. Casting methods. Recovering of a casing. Defects in the casting.	1	2	1	5
6.	Physiognomic acrylic (Jacket) and composite crowns. Clinical and laboratory stages through classical and modern method. Indications for the manufacturing of physiognomic crowns. Clinical and laboratory stages of manufacturing the physiognomic acrylic and composite crowns. Self-cure polymerization and heat-cure polymerization resins. Advantages of acrylic crowns made by the modern method compared to the classical. Polymerization conditions and stages of acrylic crowns. Manufacturing stages of composite resin crowns. Sequence of applying composite layers and polymerization of layers.	1	2	1	5
7.	Physiognomic (Jacket) all ceramic crowns. Manufacturing techniques. The methods of making all ceramic dental restorations. Peculiarities of making the ceramic crowns according to Dicor technique. Characteristic of making the ceramic crowns according to Cerestore, In Ceram, CAD-CAM techniques. Advantages and disadvantages of making physiognomic (Jacket) all ceramic crowns. Glazing of ceramic crown.	1	2	1	5
8.	Mixed metal-ceramic crowns. Clinical and laboratory stages of manufacturing. Clinical and laboratory stages for metal-ceramic crowns. Peculiarities of making the model for mixed metal-ceramic crowns. Peculiarities of preparation of abutments for mixed crowns. Modeling techniques of the wax pattern of metal substructure, mixed metal-ceramic crown. Alloys used for the metal substructure of mixed metal-ceramic crowns. Bonding possibilities of ceramics to the metal component.	1	2	1	5
9.	Mixed metal-acrylic crowns. Clinical and laboratory stages. Clinical and laboratory stages of manufacturing metal-acrylic crowns with casting metal substructure. Casting process of the metal substructure of mixed metal-acrylic crowns. Classical and modern manufacturing methods of physiognomic component for metal-acrylic crowns. Classical and modern methods of bonding the resins to the metal substructure of metal-acrylic crowns.	1	2	1	5
10.	Post and core crowns. Characteristic. Classification. Clinical and laboratory stages. Test control. Clinical and laboratory stages of making a simple post and core acrylic	1	2	1	5



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Nr. d/o	THEME	Number of hours			
		Cours es	Semi- nars	Pra- ctice	Indivi dual
	crown. Manufacturing peculiarities of the cast for the post and core crown (indirect method). Method of manufacturing the post and core crown from prefabricated dowels. Peculiarities of canal preparation. Requirements for the preparation of a dowel core. Techniques of making the post and core crowns restorations. Requirements for post and core crowns.				
11.	Partial edentulism. Etiology, symptoms, clinical forms. Prosthetic field components. Classification and components of dental bridges. Definition of "partial edentulism". Varieties by size. Etiology of partial edentulism. Exo and endo buccal symptoms of a partially edentulous patient. Classification of partial edentulism by Kennedy. Partially edentulism prosthetic field components. Classification of dental bridges. Components of dental bridges. Indications for the therapy of partial edentulism with dental bridges.	1	2	1	5
12.	Manufacturing technology of full cast dental bridges. Test control. Full cast dental bridges, characteristic. Clinical and laboratory stages of full cast dental bridges. Wax varieties used for wax pattern fabrication of full cast dental bridge. Equipment, armamentarium and materials required for the preparation of abutment teeth in full cast dental bridges. Varieties of gingival margins, necessity and technique. Wax pattern modeling technique for full cast dental bridge. Sprue channels, requirements and their formation methods.	1	2	1	5
13.	Manufacturing technology of physiognomic acrylic dental bridges. Clinical and laboratory steps of acrylic physiognomic dental bridges by classical and modern method. Shape the wax pattern of acrylic physiognomic dental bridges. Technique of realization of the print for transforming the wax pattern of physiognomic acrylic dental bridges in the required material.	1	2	1	5
14.	Manufacturing technology of physiognomic full ceramic dental bridges. Characteristic of physiognomic ceramic dental bridges. Indications to physiognomic ceramic dental bridges. Clinical and laboratory manufacturing stages for physiognomic ceramic dental bridges using the classical method. Peculiarities of preparation of abutment teeth in making physiognomic ceramic dental bridges. Modern manufacturing techniques of physiognomic ceramic dental bridges.	1	2	1	5
15.	Manufacturing technology of mixed physiognomic metal-ceramic dental bridges. Characteristic of components of mixed metal-ceramic dental bridges. Peculiarities of abutment teeth preparation and impression in the manufacturing of mixed metal ceramic dental bridges. Materials and manufacturing technique of the wax pattern for making mixed metal-ceramic dental bridges. Modeling techniques of the wax pattern of metal component of mixed physiognomic metal-ceramic dental bridges.	1	2	1	4
16.	Manufacturing technology of mixed physiognomic metal-acrylic dental bridges. Clinical and technical manufacturing stages. Clinical and laboratory stages of metal-acrylic dental bridges. Peculiarities of abutment teeth preparation in the metal-acrylic dental bridge. Materials and impression technique of prosthetic field in the manufacturing of metal-acrylic	1	2	1	4



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Nr. d/o	THEME	Number of hours			
		Cours es	Semi- nars	Pra- ctice	Indivi- dual
	dental bridges. Technique of the working and auxiliary models. Wax pattern modeling technique of metal substructure of metal-acrylic dental bridge. Requirements to the metal substructure of metal-acrylic dental bridge. Metals and alloys used in the manufacture of metal-acrylic dental bridges. Composition. Technological properties.				
17.	Processing and finishing of dental bridges. Test control. Necessary equipment for the finishing and polishing of dental bridges. Necessary instruments for the finishing and polishing of dental bridges. Necessary materials for the finishing and polishing of dental bridges. Sandblasting of cast pieces. Mechanical finishing technique of dental bridges. Grinding and polishing of dental bridges.	1	2	1	4
Total		17	34	17	82

VI. REFERENT OBJECTIVES AND CONTENT UNITES .

Objectives	Content units
Manufacturing technology of fixed micro-prostheses	
<ul style="list-style-type: none"> ✓ to define the concept of prosthesis, appliances and prosthetic appliances; ✓ to explain the crown dental defect and restoration techniques; ✓ to explain the clinical and laboratory stages for carrying out the intra-coronal restoration; ✓ to know the requirements to prepared cavity and retentive peculiarities of partial crowns; ✓ to know the construction features of partial crowns: 3/4,4/5,7/8; ✓ to know the benefits, indications and contraindications for partial crowns. 	<p>The concept of dental prosthesis, appliances and prosthetic appliances;</p> <p>Characteristic of dental crown defects</p> <p>Restoration techniques of coronal diseases.</p> <p>Clinical and technical stages for making intra-coronal restorations through direct, indirect and mixed method.</p> <p>Classification of intra-coronal restorations: by aim, material, methods of manufacturing.</p> <p>Requirements to the cavity prepared under intra-coronal restorations. Retentive peculiarities of partial crowns with and without dowel pins.</p> <p>Construction features of partial crowns: 3/4, 4/5, 7/8</p> <p>Advantages and indications for partial crowns.</p> <p>Contraindications for partial crowns.</p>
Manufacturing technology of complete crowns	
<ul style="list-style-type: none"> ✓ to know the clinical and laboratory stages for full cast and physiognomic crowns; ✓ to be able to prepare the tooth for full cast crowns; ✓ to be able to shape the wax pattern of full cast crown and realization of sprue channels; ✓ to know the casting process; ✓ to know the peculiarities of tooth preparation for making acrylic and ceramic crowns; ✓ to know advantages and disadvantages of 	<p>Modeling techniques of wax pattern of full cast crown with controlled and uncontrolled thickness.</p> <p>Realization of sprue channels. Manufacturing method.</p> <p>Introduction techniques of alloys in print.</p> <p>Advantages of acrylic crowns made through the modern method as compared to the classical.</p> <p>Peculiarities of making the ceramic crowns through Dicor, Cerestore, In Ceram, CAD-CAM techniques.</p> <p>Advantages and disadvantages of ceramic manufacturing using all-ceramic systems.</p>



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Objectives	Content units
<ul style="list-style-type: none">crowns' manufacturing of full ceramic systems;✓ to know the alloys used for the metal substructure of mixed crowns;✓ to explain the bonding possibilities of ceramics or acrylic to the metal substructure;✓ to be able to make preparation of the canal✓ to be able to perform the wax pattern dowel pins.	<p>Alloys used for the metal substructure of mixed metal-ceramic and metal-acrylic crowns.</p> <p>Possibilities ceramics-alloy bonding.</p> <p>Principles of classical and modern conditioning of metal surfaces of metal-acrylic crowns.</p> <p>Method of manufacturing the post and core crown from prefabricated dowels pins.</p> <p>Peculiarities of teeth preparation by means of endodontic treatments.</p> <p>Techniques of making the post and core crowns restorations.</p>
Manufacturing technology of non-physiognomic dental bridges	
<ul style="list-style-type: none">✓ to define the concept of partial edentulism;✓ to know edentulism varieties by size;✓ to know the etiology and classification of partial edentulism by Kennedy;✓ to show the components of partially edentulous prosthetic field✓ to know the components of dental bridges and indications for the therapy of partial edentulism with dental bridges.✓ to know the manufacturing stages of full cast dental bridges.✓ to be able to make abutment teeth preparation of the manufacturing of full cast dental bridges and making the marginal gingival design.	<p>Definition of "partial edentulism".</p> <p>Etiology of partial edentulism</p> <p>Classification of partial edentulism by Kennedy.</p> <p>Components of partially edentulous prosthetic field.</p> <p>Classification of dental bridges.</p> <p>Components of dental bridges.</p> <p>Indications for the therapy of partial edentulism with dental bridges.</p> <p>Clinical and laboratory stages of cast dental bridges.</p> <p>Varieties of marginal gingival design, requirements and technique of manufacturing.</p>
Manufacturing technology of physiognomic dental bridges	
<ul style="list-style-type: none">✓ to know clinical and laboratory stages of acrylic dental bridges;✓ to be able to shape the wax pattern of physiognomic acrylic dental bridges;✓ to be able to prepare abutment teeth for manufacturing ceramic bridges;✓ to know modern manufacturing techniques for ceramic dental bridges;✓ to explain the components of mixed dental bridges;✓ to know clinical and laboratory stages of mixed dental bridges;✓ to be able to prepare abutment teeth for mixed dental bridges;✓ to be able to shape the wax pattern of metal component of mixed metal dental bridge;✓ to know the types of metals and alloys used in the manufacture of mixed dental bridges;✓ to know the requirements to the metal component of mixed dental bridges;✓ to know the necessary equipment, instruments	<p>Clinical and laboratory stages of acrylic dental bridges using classical and modern methods.</p> <p>Techniques of the wax pattern of physiognomic acrylic dental bridges</p> <p>Peculiarities of preparation of abutment teeth in making physiognomic ceramic dental bridges.</p> <p>Characteristic of components of mixed dental bridges</p> <p>Contemporary manufacturing techniques of physiognomic ceramic dental bridges</p> <p>Clinical and laboratory stages of mixed dental bridges</p> <p>Peculiarities in the preparation of abutment teeth in a mixed dental bridge</p> <p>Techniques of the wax pattern of metal substructure of mixed dental bridges</p> <p>Metals and alloys used in the manufacturing of mixed dental bridges.</p> <p>Requirements to the metal substructure of the mixed dental bridge.</p> <p>Necessary equipment and instruments for</p>



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Objectives	Content units
and materials for the finishing and polishing of dental bridges; ✓to know the grinding and polishing of dental bridges.	finishing and polishing the dental bridges. Necessary materials for finishing and polishing the dental bridges. Mechanical processing technique of dental bridges. Grinding and polishing of dental bridges.

VII. PROFESSIONAL (SPECIFIC (SC)) AND TRANSVERSAL (TC) COMPETENCES AND STUDY OUTCOMES

Professional competencies (specific) (SC)

SC1: Knowing of clinical and laboratory bases of fixed prosthesis, types of fixed prostheses for the restorations of crown dental defects; knowing of clinical and laboratory stages of various types of fixed prosthetic single-tooth restorations; knowing of classical and modern manufacturing methods of fixed prosthetic single-tooth restorations; knowing of components of partially edentulous field and technology of dental bridges; knowing of laboratory finishing and polishing of fixed prostheses.

SC2: Knowing and preparation of cavities for intra-coronal restorations; evaluation and manufacturing of wax patterns through direct, indirect and mixed method; teeth preparation for partial and full crowns; description of conditioning methods of the metal surface for mixed metal-ceramic, metal-acrylic crowns; description of the components of the partially edentulous prosthetic field; evaluation of the indications for the therapy of partial edentulism with dental bridges; evaluation and preparation of abutment teeth for making fixed dental bridges.

SC3: Description of clinical and laboratory stages of fixed single-tooth prostheses and dental bridges; evaluation peculiarities of teeth preparation for physiognomic and mixed dental crowns; evaluation peculiarities of modern manufacturing methods of fixed ceramic single-tooth prostheses; determining the type of partial edentulism by Kennedy; description of preparation features of abutment teeth for the manufacturing of dental bridges; grinding and finishing technique of fixed dental prostheses using proper materials, instruments and equipment.

SC4: Analysis of the wax patterns of complete crowns and full cast dental bridges. Evaluation and description of modern manufacturing methods of complete crowns and physiognomic dental bridges. Description and demonstration of the exchange process of the wax to acryl and deposition of ceramic coating layer by layer.

SC5: Description of the concept and types of single-tooth fixed prostheses and dental bridges. Evaluation treatment methods of crown dental defects and indications for the therapy of partial edentulism with dental bridges.

SC6: Demonstration and application of the knowledge gained in the pre-clinical evaluation. Selecting manufacturing techniques of fixed single-tooth prostheses and dental bridges and indications for the necessity of their use.

Transverse competencies (skills) (TC)

TC1: Applying professional standards of assessment, acting according to professional ethics, as well as the provisions of the legislation. Promoting logical reasoning, practical applicability, assessment and self-assessment in decision-making.



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TC2: Performing activities and exercising the roles specific to teamwork in the framework of Stomatological Propaedeutic Department. Promoting the spirit of initiative, dialogue, cooperation, positive attitude and respect for others, empathy, altruism and continuous improvement of their own activity.

TC3: Systematically assessing of personal skills, of the role and expectations, applying self-assessments for learned processes, acquired skills and professionalism needs, effective use of language skills, knowledge in informational technologies, research and communication skills, in order to provide qualified services and adaptation to the dynamics of health policy requirements and personal and professional development.

Study finalizations

At the end of the course, the student will be able to:

- to know the types of intra-coronal and extra-coronal restorations and indirect restoration techniques;
- to know the laboratory and clinical manufacturing principles of fixed single-tooth prostheses and dental bridges;
- to carry out cavity preparation for intra-coronal restorations, teeth preparation for extra-coronal restorations and preparation of abutment teeth for the manufacturing of dental bridges;
- to carry out the modeling of wax patterns for fixed prostheses;
- to know the finishing and processing technique of fixed prostheses.

VIII.STUDENT'S SELF-TRAINING

Nr.	Expected product	Implementation strategies	Assessment criteria	Implementation terms
1.	Working with informational sources	Reading the lecture or the material in the manual on the subject. Reflecting on the topic in the questions. Knowing and selecting additional information sources on the topic. Reading the text carefully and describe the essential content. Wording of generalizations and conclusions regarding the importance of the theme / subject.	The ability to extract the essentials. Interpretative skills. The ability to analyze and communicate the material accumulated on its own.	During the semester
2.	Realization of practical laboratory works	Assessment of practical works, arguing conclusions at the end of each practical work. Check the outcomes and assess their implementation. Selecting additional information using e-mails and supplementary bibliography.	The quality of practical works, the ability to prepare cavities and teeth for various prosthetic constructions and the ability to model wax patterns. The ability to analyze selected information from professional national and international sites.	During the semester
3.	Evaluation of perception (basic knowledge) in determining the types of crown dental defects and partial edentulism. Evaluation of manufacturing techniques of fixed prostheses Each student will perform dental cavities and teeth preparation depending on the types of crown dental			



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Nr.	Expected product	Implementation strategies	Assessment criteria	Implementation terms
	defects, type of partial edentulism and will make also the wax patterns of future fixed prostheses.			
3.1.	Appreciation of cavities and teeth preparation for fixed prosthesis	Working with gyps models and phantom models on which there are prepared dental cavities for intra-coronal, the teeth for complete crowns and abutment teeth for dental bridges	Assessing the accuracy and the technique performed.	During the semester
3.2.	Appreciation of wax patterns modeling of future prosthetic works.	The student must shape the wax patterns of future intra-coronal, complete crowns and dental bridges.	Assessing the accuracy of completion of practical work undertaken by the student.	During the semester
3.4.	Preparing the project	Students will prepare information on the selected topic from the Thematic Plan with schematic and graphics rendering in Power Point.	Evaluation of the quality of the selected material, the design of the project and the ability to reproduce the information.	During the semester

VIII. METHODOLOGICAL SUGGESTIONS FOR TEACHING-LEARNING-ASSESSMENT

✓ Teaching and learning methods used

In the teaching process of the discipline “The manufacturing technology of fixed prostheses” different teaching methods are used, oriented towards the efficient acquisition and achievement of the objectives of the didactic process. The course provides lectures, seminars, practical works and individual work. Courses are held in the third semester by the course owner (titular). The following forms of training are used in the practical work: frontal, individual activity, brainstorming sessions, group discussions, case studies in community pharmacies, case study. As a teaching aid, the specialized manuals are available in the university library, the methodological recommendations of the department's staff, tables, schemes, information sources in electronic format, national and international professional websites, etc. are available. Students receive individual assignments that are presented for group discussions, which subsequently assess the quality of individual work and practical skills. In order to acquire the didactic material and teambuilding, during the semester the students perform a mini-research in the field, the results of which are presented at the seminars and practical lessons organized in the last month of the semester.

As recommended **learning** methods are: *learning* theoretical *material* after lecture and manual; *observation* - identifying the manufacturing techniques of fixed prostheses; *analysis* - in the manufacturing of wax patterns of various types of fixed prostheses; *comparison* – comparison based analysis of manufacturing classical and modern methods according to their advantages and disadvantages; *elaboration of the algorithm* - selection of clinical and laboratory fixed prostheses; *modeling* - identifying and selecting the laboratory stages for wax patterns of fixed prostheses, the exchange of wax in the required material, finishing and polishing fixed prostheses.



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✓ **Applied teaching strategies / technologies (specific to the discipline)**

Face-to-face and individual activity, brainstorming sessions, group discussions, analysis of treatment methods of dental coronal diseases and partial edentulism, student's individual work, realization of practical works, comparative analysis.

✓ **Methods of assessment (including the method of final mark calculation)**

Current: Current checks during seminars and practical lessons, 3 totals in writing and / or as test-control. For the individual work done during the semester, the student is evaluated, the grade being included in totals. At the end of the semester, based on the grades from the totals, the average annual score is calculated.

Final: The course ends with an exam. The note at the exams of the annual average calculated at the end of the study discipline - 50%; the test-control - 20% and the oral interview - 30%. The annual average grade and the grades of all stages of final examination (test and oral answer) – are expressed in numbers according to the rating scale (see table) and the final mark awarded is expressed in a number with two decimal places, which will be passed in the student's record book.

Method of mark rounding at different assessment stages

Intermediate marks scale (annual average, marks from the examination stages)	National Assessment System	ECTS Equivalent
1,00-3,00	2	F
3,01-4,99	4	FX
5,00	5	E
5,01-5,50	5,5	
5,51-6,00	6	
6,01-6,50	6,5	D
6,51-7,00	7	
7,01-7,50	7,5	C
7,51-8,00	8	
8,01-8,50	8,5	B
8,51-8,00	9	
9,01-9,50	9,5	A
9,51-10,0	10	

Note: Absence on examination without good reason is recorded as "absent" and is equivalent to 0 (zero). The student has the right to have two re-examinations.



CD 8.5.1 CURRICULUM DISCIPLINĂ PENTRU STUDII UNIVERSITARE

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IX. X.RECOMMENDED LITERATURE:

A. Mandatory:

1. Lecture materials.
2. Fundamentals of fixed prosthodontics / Herbert T. Shillingburg, Jr. [et al.]. - 4th ed. /Indian edition. - Chicago : Quintessence, 2014
3. D.Bratu, R.Nussbaum. Bazele clinice și tehnice ale protezării fixe București, 2011. 1250p.
4. Ортопедическая стоматология : учебник для студентов / Н. Г. Аболмасов, Н. Н. Аболмасов, В. А. Бычков, А. Аль-Хаким. - 5-е изд. - Москва : МЕДпресс-информ, 2007
5. Bratu, Dorin. Bazele clinice si tehnice ale protezarii fixe / D. Bratu, R. Nussbaum. - Ed. a 3a. - Bucuresti : Editura Medicala, 2006
6. Трезубов В.Н., Щербakov А.С., Мишнев Л.М., Фадеев Р.А. Ортопедическая стоматология. Санкт-Петербург Фолиант 2002. 576с.
7. Ортопедическая стоматология: учебник / под ред. В. Н. Копейкина, М. З. Миргазизова. - 2-е изд. /доп.. - Москва : Медицина, 2001
8. Rindasu, Ion. Proteze dentare. Vol.1: Microproteze, punti, proteze acrilice / I. Rindasu. - Ed. a 3-a /rev. si adaug.. - Bucuresti : Editura Medicala, 2000
9. Bârsa Gh. Postolachi I. – Tehnici de confecționare a protezelor dentare- Chișinău : Știința, 1994
10. Postolachi I. și a. – Protetica dentară, Chișinău,1993.