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. 2 of 13.02.2018
Committee President, PhD., DMS., Associate professor
Stepco Elena

APPROVED
at the Council meeting of the Faculty of Stomatology
Minutes No. 6 of 20.02.2018
Dean of Faculty of Stomatology, PhD., DHMS., Professor,
Ciobanu Sergiu

APPROVED
at the meeting of the chair of Stomatological Propaedeutics
„Pavel Godoroja"
Minutes nr. 3 from 20.10.2017
Head of chair, PhD., DHMS., Associate professor
Uncuța Diana

CURRICULUM

DISCIPLINE: **FUNCTIONAL MORPHOLOGY OF THE STOMATOGNATHIC SYSTEM**

Integrated studies

Type of course: **Compulsory discipline**

Chisinau, 2017

I. PRELIMINARIES

- ***General presentation of the discipline: the place and role of the discipline in the formation of the specific competences of the vocational/specialty training program.***

The discipline, functional morphology of the stomatognathic system is an important component of the preclinical and clinical education of the future dentist and aims to study the components of the stomatognathic system - the philogenetic, ontogenetic, morphological and functional level of developing the stomatognathic system, the integral part of the human body. This discipline refers to the knowledge, understanding and acquiring of the general notions regarding the morphology of the elements of the stomatognathic system, correlation of the acquired knowledge with the ones studied in anatomy, physiology, histology, knowledge of the morphological entity of each individual and their association in a functional morphological complex - stomatognathic system. At the same time, special attention is paid to the knowledge of the macroscopic and microscopic structure of the dental tissues and their topographic relationship.

Mission of the curriculum (aim) in vocational training

The functional morphology of the stomatognathic system aims to present the importance of knowledge about the morphology and functions of the stomatognathic system and their implementation in the following courses in becoming a good dentist. This discipline is oriented towards a medical attitude that starts from knowing the essential material for understanding pathological changes. In this way, we consider it necessary to know the functional morphology of the elements of the stomatognathic system for the elaboration and application of dental therapy.

- **Discipline teaching languages**: Romanian, Russian and English.
- **Beneficiaries**: students of the first year, second semester, the Faculty of Stomatology.

II. DISCIPLINE ADMINISTRATION

Discipline code		**S.02.O.014**	
Discipline name		**Functional morphology of stomatognathic system**	
Responsible for discipline		**Bajurea Nicolae,** Phd.,DMS., associate professor **Uncuța Diana**, Head of chair, PhD., DHMS., Associate professor	
Year	**I**	Semester	**II**
Total number of hours, including:			**90**
Lectures	**17**	Practical courses	**17**
Seminars	**34**	Individual work	**22**
Evaluation form	**E**	Number of credits	**3**

III. THE TRAINING OBJECTIVES OF THE DISCIPLINE

- ***At the level of knowledge and understanding:***

✓ To know the particularities of functional morphology of the stomatognathic system, components, the legacy of the reciprocal character between the structure (form) and its function;
✓ To know the functional morphology of the jaws. Resistance lines of the maxilla and mandible;
✓ To understand the principles of stomatognathic system compartment, the functions of each compartment, the interrelationships between different organs and systems of the whole human body;
✓ To know the factors that guide the development of the stomatognathic system, the reciprocal relation between function and morphology following the example of temporomandibular joint, two stages in postnatal morphology of teeth.
✓ To understand the notions: masticatory pressure, absolute muscular force, methods of determination.
✓ To know and to understand the individual and group morphological characters of the teeth.
✓ To know and understand the factors that ensures the morphofunctional unity of dental arches. Occlusal area. Occlusal plan.
✓ To know and understand the notions of "occlusion", "static occlusion", "dynamic occlusion", "occlusion relations", varieties of dynamic occlusion.
✓ To know the basis of the mandible biomechanics, the act of mastication.
✓ To define the notions: organogenesis, dental histogenesis.
✓ To know the formation of odontogenic mesenchyme.
✓ To know and to demonstrate the formation of dental plate.
✓ To understand the development of primordial ties, differentiation of primordial.
✓ To know dentin genesis.
✓ To know amelogenesis.
✓ To know the pulp histogenesis.
✓ To know the theories of the dental eruption.
✓ To know the histological structure and chemical composition of hard dental tissues (enamel, dentin, cement morphology).
✓ To know the histological structure and chemical composition of soft dental tissue (dental pulp, vascularization, nerve supply, functions).
✓ To know the terms of training, mineralization and eruption of temporary and permanent teeth.

- ***Application level:***

✓ To be able to identify and describe the teeth after the signs of differentiation;
✓ To recognize the types of occlusion and analyze the teeth contacts in mandible movements;
✓ To distinguish the signs of centric occlusion characteristic of all teeth and frontal teeth in orthognathic occlusion.
✓ To distinguish the characteristics of occlusal signs defining for the lateral teeth in the sagittal and transversal plane in the static occlusion.
✓ To evaluate the practical role of Wild, Silverman and Robinson tests;
✓ To be able to correctly use the tools for modeling and applying the practical manipulations.
✓ To model by curving the crowns of anterior teeth on the upper jaw and lower jaw in gipsum, soap and wax;
✓ To model by curving the crowns of posterior teeth on the upper jaw and lower jaw in gipsum, soap and wax;

- ***At the integration level:***

- ✓ To be able to evaluate the place and role of functional morphology of the stomatognathic system in the preclinical preparing of the dentist;
- ✓ To be competent to use the knowledge and methodology of the functional morphology of the stomatognathic system in the ability to explain the nature of physiological or pathological processes;
- ✓ To be able to make connection between the structure and function of the stomatognathic system;
- ✓ To be able to implement accumulated knowledge and use medical terms correctly;
- ✓ To be able to assimilate new achievements in dental disciplines.

IV. PRECONDITIONS AND EXIGENCIES

Defining the stomatognathic system and its component parts, define and describe the components of the oral cavity; The role of the functional factor in the development and formation of the Stomatognathic System; Knowledge of the structure and functions of the the skull bones, vertical and horizontal ressistance line in upper and lower jaw, arterial and nerve supply; Knowledge of insertion and functions of movable muscles of mandible; Knowing the structure of temporomandibular articulations, functions. Obtaining the knowledge of descriptive dental anatomy; Knowledge of the morphological changes of the teeth in the the human evolution; Defining and learning the types of dentitions; Learning and application in practice of tooth numbering systems; Knowledge of the anatomical terms used to describe the coronal and radicular teeth morphology; Knowledge of common morphological characters and differentiation of permanent and primary teeth; Knowledge of the elements that ensure the morph-functional unity of the dental arches; Knowledge of centric occlusion signs; Knowledge of relations between physiological and pathological dental arcades; Defining the notions of organogenesis, dental histogenesis; Knowing the formation of odontogenic mesenchyme; Knowledge of dental plate formation; Knowledge of dentin genesis and amelogenesis; Knowledge of pulp histogenesis; Knowledge of dental eruption theories; Knowledge of histological structure and chemical composition of hard dental tissues (enamel, dentin, cement morphology); Knowledge of the histological structure and chemical composition of soft dental tissue (dental pulp, vascularization, excitation, functions); Knowledge of the terms of training, mineralization and eruption of temporary and permanent teeth.

V. THEMES AND ORIENTATIVE DISTRIBUTION OF HOURS

Nr. d/o	THEME	Number of hours			
		Courses	Semi-nars	Pra-ctice	Indivi dual
1.	**Functional morphology of Stomatognathic System. Component elements. The philogenetic and ontogenetic development of Stomatognathic System.** Stomatognathic System. "Notion". Component elements of the Stomatognathic System**.** The factors which influence and lead development and formation of the Stomatognathic System. The role of functional factor in development and formation of the Stomatognathic System. Comparative dental anatomy. Components of the oral cavity. Oral mucosa. Characteristics. The tongue. Structure. Functions. Salivary glands. Characteristics.The functions of Stomatognathic System.	1	2	1	1
2.	**Dento – osseous Structures of Stomatognathic System, Blood Vessels and Nerves.** The bones of the skull. Overview. Functional morphology of the mandible. Resistance lines of mandible and their practical importance. Functional	1	2	1	2

Nr. d/o	THEME	Number of hours			
		Courses	Semi-nars	Pra-ctice	Individual
	morphology of the maxillae. Vertical resistance lines of maxillae and their practical importance. Horizontal resistance lines of maxilla and their practical importance. Functional morphology of the hard palate. Functional morphology of the alveolar process. Arterial supply to the teeth. Nerve supply to the jaws and teeth.				
3.	**Muscle's functional morphology of Stomatognathic System.** The muscles of Stomatognathic System. Classification. Three groups of removable muscles of mandible. Elevator muscles of mandible. Insertion. Functions. Depressor muscles of mandible. Insertion. Functions. Protrusive muscles of the mandible. Insertion. Functions. Explain the role of muscle function in development, formation and individual modeling of the component parts of Stomatognathic System. Absolute muscular force. Characteristics. How do temporal muscles influence the stereotype of masticator process. How do maseter, internal pterygoid muscles, influence the stereotype of masticator process. How does the stereotype of mastication refer to the teeth morphology.	1	2	1	2
4.	**Functional morphology of Temporomandibular Joint (TMJ).** The component elements of TMJ. Condyloid process. Characteristics. Mandibular fossa. Characteristics. Articular eminence. Characteristics. Articular disk. Characteristics. Joint capsule. Characteristics. Mandibular ligaments. Characteristics. The deepness of glenoid fossa. Practical importance. What determines the height of articular eminence. Shapes of articular eminence. The role of function, in development and formation of TMJ according to comparative anatomy. In how many compartments does the articular disk divide the articular cavity.Movements in TMJ. What kind of movements takes place in each compartment of TMJ. **Totalization**	1	2	1	2
5.	**Introduction to Dental Anatomy. Nomenclature. Tooth Numbering Systems. Types of dentitions.** Introduction to dental anatomy. Types of dentitions. Overview. Teeth number in permanent and primary dentition. Evolution. Name 4 groups of teeth in permanent dentition according to their function. Dental nomenclature.Tooth numbering systems. Explain the role of the function in the development and differentiation of the teeth. Anatomical and clinical crown of the tooth. Anatomical and clinical root of the tooth.Which are the general characters of teeth functional morphology.	1	2	1	1
6.	**Functional morphology of incisors.** The permanent incisors. Overview. Maxillary central incisor. Characteristics. Maxillary lateral incisor. Characteristics.Mandibular central incisor. Characteristics.Mandibular lateral incisor. Characteristics.Differential signs of upper incisors. Differential signs of lower incisors. Differential signs of upper incisors from lower incisors. The height of contour. Notion. The place of height of contour on incisors.	1	2	1	1
7.	**Functional morphology of canines.** The maxillary and mandibular canines. Overview. The maxillary canine. Characteristics. The mandibular canine. Characteristics. Differential signs of superior canines. Differential signs of inferior canines. Differential signs of	1	2	1	1

Nr. d/o	THEME	Number of hours			
		Courses	Semi-nars	Pra-ctice	Individual
	superior canines from inferior canines. The common features of buccal aspect in canines. The place of height of contour on canines.				
8.	**Functional morphology of permanent maxillary premolars.** The maxillary premolars. Overview. Maxillary first premolar. Characteristics. Maxillary second premolar. Characteristics. Differential signs of maxillary premolars on right half arch from left half arch. Characterize the occlusal aspect of maxillary premolars. The common features of buccal aspect in maxillary premolars.The place of height of contour on maxillary premolars.	1	2	1	2
9.	**Functional morphology of permanent mandibular premolars.** The mandibular premolars. Overview. Mandibular first premolar. Characteristics. Mandibular second premolar. Characteristics. Differential signs of mandibular premolars on right half arch from left half arch. Differential signs of mandibular premolars from maxillary premolars.Characterize the occlusal aspect of mandibular premolars. The common features of buccal aspect in mandibular premolars. The place of height of contour on mandibular premolars.	1	2	1	2
10.	**Functional morphology of the permanent maxillary molars.** The permanent maxillary molars. Overview. Maxillary first molar. Characteristics. Maxillary second molar. Characteristics. Maxillary third molar. Characteristics. Differential signs of maxillary molars on right half arch from left half arch. Differential signs of maxillary molars between them. Characterize the occlusal aspect of maxillary molars. The common features of buccal aspect in maxillary molars**.** The place of height of contour on maxillary molars.	1	2	1	1
11.	**Functional morphology of the permanent mandibular molars.** The permanent mandibular molars. Overview. Mandibular first molar. Characteristics.Mandibular second molar. Characteristics. Mandibular third molar. Characteristics. Differential signs of mandibular molars on right half arch from left half arch. Differential signs of mandibular molars between them. Characterize the occlusal aspect of mandibular molars. The common features of buccal aspect in mandibular molars**.** The place of height of contour on mandibular molars. **Totalization**	1	2	1	1
12.	**Functional morphology of dental arches. Periodontium. Functions.** Dental, alveolar, basal arch. Notion. Elements which assures morphofunctional unity of dental arches. The contact points between teeth and practical importance. Shapes of superior and inferior dental arches in physiological conditions. Teeth implantation in the upper jaw. Teeth implantation in the lower jaw. Correlation between dental, alveolar, basal arches in maxilla and mandible. Occlusal areas. Practical importance. Parodontium. Notion**.** Component elements. Characteristics.Periodontal space. The width of it. The periodontal fibers. Characteristics. Functions of parodontium. Characteristics. Explain the function of amortization in parodontium. Notion – "Reserve forces of parodontium". Practical importance.	1	2	1	1
13.	**Occlusion. Occlusal and rest mandible relation. Physiological and**	1	2	1	1

Nr. d/o	THEME	Number of hours			
		Courses	Semi-nars	Pra-ctice	Individual
	pathological occlusions. Biomechanics of mandible. Occlusion. Notion. Concepts. Centric occlusion. Centric relation. Notion. Characteristics. The Signs of centric occlusion for physiological relation between dental arches. Rest mandible position. Notion. Characteristics. The space between dental arches in rest mandible position. Active and passive elements which manage the rest mandible position. Notion "Space of physiological innocclusion". Practical importance. Notion "Space of free way speech". Practical importance. Occlusal plan. Practical importance. Occlusal curves. Practical importance. Relation between physiological dental arches (Types of physiological occlusions). Relation between pathological dental arches (Types of pathological occlusions). Biomechanics of mandible. Directions of mandibular movements. Characteristics. The mandible movements in TMJ. Poselt Diagram. Phases of mandible movement during mastication by Gyzi. Characteristics. **Totalization**				
14.	**Morphological structure and chemical composition of the enamel, dentinum and cementum**. The general structure of the enamel. Enamel prisms and intermediate substance. Lines of Hunter-Schreger. Incremental striae of Retzus. Pickerill imbrication lines. Interprismal sticking substance. Lamellas, tufts, spindles. The basic structural formation of the enamel. Structure of the cristalls of hydroxyapatites. Molecular structure of the enamel. Mineral components of the enamel. Organic substance of the enamel. Functions of the enamel. Mechanisms and ways of penetration of the enamel. Maturation of the enamel. Vitality of the enamel. Hystological structure of the dentinum. External and internal dentinum. Chemical composition of the dentinum. Dentinal tubules. Primary, secondary and tertiary dentinum. Hystological structure of the cementum. Chemical composition of the cementum. Notion about cellular and acellular cementum.	1	2	1	1
15.	**The structure and function of the dental pulp.** The structure of the pulp. The basic substance of the pulp. Fibers of the pulp. Cells of the pulp. Blood supply of the pulp. Innervation of the pulp. Trophic function of the pulp. Defensive or barrier function of the pulp. Plastic function of the pulp. Changes in the pulp with age. Denticles (free, parietal, and inerstitial).	1	2	1	1
16.	**Development of the teeth. I and II phases. Hystogenesis of tooth tissues.** Name the stages of tooth development. How does the dental plate begin and develop. From which of the dental plates do the germs of the permanent teeth develop. Components of the dental germ. Laying and development of the temporary teeth. Laying and development of the permanent teeth. Differentiation of the cells of the enamel organ. Differentiation of the cells of the dental papilla. Hystological structure of the enamel organ. Hystological structure of the dental papilla. From which parts of the dental germ do the enamel, dentinum, pulp, cement develop. Which cells are in the internal epithelial layer of the enamel organs and their functions. The role of the Hertvige sheath. Hubernaculum dentis. Its role. Changes in the enamel organ, which precede to the hystogenesis. Stage of formation and	1	2	1	1

Nr. d/o	THEME	Number of hours			
		Courses	Semi-nars	Pra-ctice	Individual
	mineralization of the dentinum and enamel. Name the stages of hystogenesis of hard tooth tissues. How do the enamel prisms form. How do the dentinal tubules form. The Toms fibers of the odontoblasts. The processes of Toms of the ameloblasts. How does the enamel-dentin junction form. Change of the polarity of ameloblasts. Significance. Hystogenesis of tooth tissues.				
17.	**Dental eruption. Terms of formation, mineralization and eruption of the primary and permanent teeth.** Dental eruption. Notion. Overview. Name and characterize the steps of dental eruption. Mechanism of eruption of the teeth. Theories of eruption. The eruption of primary teeth. Laying of the dental germs. Beginning of mineralization and formation of crowns of the primary teeth. Terms of eruption of primary teeth. Terms of the beginning and finishing of resorption of roots of primary teeth. Types of the resorption of roots. The eruption of permanent teeth. Laying of germs, beginning of mineralization and formation of permanent teeth. Terms of eruption of permanent teeth. Terms of formation of roots of permanent teeth. **Totalization**	1	2	1	1
Total		**17**	**34**	**17**	**22**

VI. REFERENT OBJECTIVES AND CONTENT UNITES

Objectives	Content units
Functional morphology of dento-osseus stuctures, muscles and the temporomandibular joints of the stomatognathic system.	
✓ To define the stomatognathic system and its component parts; ✓ To define and describe the components of the oral cavity; ✓ To develop own opinions about the role of the functional factor in the development and formation of the stomatognathic system; ✓ To know the dento-osseous structure and functions of the stomatognathic system, the vertical and horizontal rezistance lines of the maxilla and the rezistance lines of the mandible, the arterial and nerve supply; ✓ To know the insertion and functions of the movable muscles of mandible; ✓ To know the structure and functions of the temporomandibular joint; ✓ To argue the significance of the stomatognathic system functions on the human body; ✓ To apply the gained knowledge in other disciplines; ✓ To formulate conclusions.	The stomatognathic system and its component parts The oral cavity and its component parts The role of the functional factor in the development and formation of the stomatognathic system. The dento-osseous structures (maxillae, mandible Movable muscles of mandible Temporomandibular joint

Objectives	Content units
Teeth - elements of macroscopic and clinical morphology	
✓ To gain knowledge about descriptive dental anatomy; ✓ To know the morphological changes of the teeth in the period of human evolution; ✓ Define and acquire the types of dentition; ✓ To learn and to apply in practice the tooth numbering systems; ✓ To know the anatomical terms used to describe the coronal and radicular morphology of the teeth; ✓ To know common morphological characters and to be able to distinguish permanent and temporary teeth between them; ✓ To model by curving the crowns of posterior teeth on the upper jaw and lower jaw in gipsum, soap and wax.	Crown and root Tooth crown (5-aspects) Anatomical crown Clinical crown Tooth crown hight of contour Cervical line The root of the tooth Cusp Cusp slopes Developmental grooves Marginal and triangular ridges Cingulum Fossa, pit Tooth numbering systems
Chapter 3. Dental arches. Occlusion. Mandible biomechanics	
✓ To define notions: dental, alveolar, basal arch; periodontium, physiological and pathological dental occlusion, mandible biomechanics; ✓ To know the elements that ensures the morfo-functional unity of the dental arches; ✓ To know and demonstrate the signs of physiological centric occlusion between the dental arches; ✓ To understand the relationship between dental arches in physiological and pathological conditions; ✓ To know the movements of mandible in the temporomandible joint (TMJ); ✓ To demonstrate schematically the area of mandible movements in the sagittal and vertical plane of the Posselt Diagram; ✓ To know the stages of mastication by Gizi.	Dental, alveolar, basal arch Occlusal area Occlusal plan Compensating curves. Periodontal - component elements. Centric occlusion, centric relation. Rest mandible position Physiologic occlusions Non – physiologic (traumatic) occlusions Mandible biomechanics
Chapter 4. Morphological structure and chemical composition of teeth. Development phases.	
✓ To define notions: Organogenesis, dental histogenesis; ✓ To know the formation of odontogenic mesenchyme; ✓ To know and demonstrate the formation of dental plate; ✓ To understand the development and differentiation of primary epithelial band;	Oral cavity organogenesis Embryological development of the dental organ Amelogenesis Cito Differentiation of ameloblasts Mineralization and maturation of enamel Dentine Differentiating odontoblasti

Objectives	Content units
✓ To know the dentinogenesis. ✓ To know the amelogenesis. ✓ To know the pulp histogenesis. ✓ To demonstrate schematically the development of the tooth root. ✓ To know the theories of the dental eruption. ✓ To know the histological structure and chemical composition of hard dental tissues (enamel, dentin, cement morphology). ✓ To know the histological structure and chemical composition of soft dental tissue (dental pulp, vascularization, excitation, functions). ✓ To know the terms of formation, mineralization and eruption of temporary and permanent teeth.	Mineralization of dentin Tooth root formation Formation of root dentine Cementoblast Alveolar bone formation Dismantling formation The terms of formation, mineralization and eruption of temporary and permanent teeth.

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

Professional competencies (specific) (SC)

SC1: Strong knowledge of the particularities of structure, development and functioning of the stomatognathic system, knowledge and understanding of the organization of the stomayognathic system from the anatomical and physiological point of view;
SC2: Practical work performed by drawing, modeling and carving in soap, wax or gypsum of permanent teeth: incisors, canines, premolars and molars in the maxilla and mandible.
SC3: Knowledge, understanding and use of dentistry-specific language, principles of evolution of periods of organogenesis and morphogenesis;
SC4: Explaining and interpreting the structure, development and functioning of the dental system
SC5: Solving situational issues and formulating the conclusions.
SC6: Analysis of various elements and processes of structure, morphology and function of the stomatognathic system and the pathways leading to pathological conditions.

Transverse competencies (TC)

TC1: Application of professional evaluation standards, professional ethics, and applicable legislation. Promoting logical reasoning, practical applicability, assessment and self-assessment in decision-making.

TC2: Performing activities and exercising the roles specific to team work within the endodontic cabinet / department. Promoting the spirit of initiative, dialogue, cooperation, positive attitude and respect for others, empathy, altruism and continuous improvement of their own activities;

TC3: Systematic assessment of competencies of personal role and expectations, application of self-evaluation of learned processes, acquired skills and professionalism needs, effective use of language skills, knowledge in information technologies, research and communication skills, adapting to the dynamics of policy requirements in health and for personal and professional development.

Study finalizations

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

• To know the notions of the stomatognathic system morphology;
• To understand the principles of compartmentalization the stomatognathic system;
• To understand the relation of the stomatognathic system with the whole human body;
• To know the phylogenetic and ontogenetic development of the stomatognathic system;
• To know the morphology of the main components of the stomatognathic system;
• To know the dento-osseous structures of the stomatognathic system;
• To know the temporomandibular joint morphology;
• To know the morphology of the muscles of the dental system;
• To have general knowledge about the morphology of teeth, arches and supporting tissues;
• To identify human teeth groups and their numbering systems;
• To know the basic mandible-cranial principles: rest mandible position, the centric relation, the static and dynamic occlusion;
• To know the jaw relations in physiological and non - physiological occlusion;
• To understand the process of mandible biomechanics;
• To know the bases and role of the occlusal area, the occlusal plane, compensatory curves;
• To know the morphological structure and chemical composition of the teeth;
• To know the stages of teeth development;
• To know the terms of formation, mineralization and eruption of temporary and permanent teeth;
• To be able to evaluate the place and role of functional morphology of the stomatognathic system in the preclinical preparation of the medical student;
• To be competent to use the knowledge and methodology of functional morphology of the stomatognathic system in the ability to explain the nature of physiological or pathological processes;
• To be able to deduce the possible causes of blockage of the underlying functional processes and their consequences on the stomatognathic system and the body as a whole;
• To be competent to use critically and confidently the scientific information obtained using the new information and communication technologies.

VIII. STUDENT'S SELF-TRAINING

Nr.	The expected product	Implementation Strategies	Evaluation Criteria	Deadline
1	Working with information sources:	Read carefully the lecture or the material from the manual to the necessary theme. Reading the questions on the theme, which require a reflection on the subject? To get acquainted with the list of additional information sources on the topic. Select the source of additional information for that theme. Reading the text entirely, carefully and writing the essential content. Forming the generalizations and conclusions regarding the importance of the theme / subject	Ability to extract the essentials; interpretative skills; the volume of work	During the semester
2	Working with the copybook of Practical Lesson:	Until solving the tasks in the notebook, to analyze the information and images from the respective subject in the lecture and the book. Solving consecutive tasks. Formulate conclusions at the end of each lesson. Verify the conclusion of the lesson and appreciate their achievement. Selection of additional information, using electronic addresses and additional bibliography.	Workload, problem solving, ability to formulate conclusions	During the semester
3	***Working with online materials***	Online self-evaluation, study of online materials on the site department, expressing your own opinions through forum and chat	Number and duration of site entries, self-evaluation results	During the semester

IX. METHODOLOGICAL SUGGESTIONS FOR TEACHING-LEARNING-ASSESSMENT

- **Teaching and learning methods used**

In the teaching of the functional morphology of the dental system are used different didactic methods, oriented towards the efficient acquisition and achievement of the objectives of the didactic process. In the theoretical lessons, along with traditional methods (lesson-exposure, lesson-conversation, synthesis lesson), modern methods (lesson-debate, lecture-conference, problem-lesson) are also used. In the practical works are used activity individual forms, frontal, group, virtual lab. In order to acquire deeper material, different semiotic systems (scientific language, graphical and computerized language) and teaching materials (tables, diagrams, photographs, transparencies) are used. Within the lessons and extracurricular activities are used Communication Technologies - PowerPoint presentations, online lessons.

• Recommended learning methods

- Observation - Identification of the elements characteristic for structures or biological phenomena of the dental system, description of these elements or phenomena.
- Analysis - Imaginary decomposition of the whole into component parts. Highlighting the essential elements. Studying each element as part of the whole.
- Plan / figure analysis - Selection of required information. Recognition based on knowledge and information selected structures indicated in the drawing, scheme. Analysis of the functions / role of recognized structures.
- Comparison - Analysis of the first object / process in a group and determination of its essential features. Analysis of the second object / process and the determination of its essential features. Comparing objects / processes and highlighting common features. Comparing objects / processes and determining differences. Establishment criteria for decommissioning. Formulation of conclusions.
- Classification - Identification of the structures / processes which need to be classified. Determining the criteria on which classification is to be made. Distribution of structures / processes by groups according to established criteria.
- Elaboration of the scheme - Selection of elements, which must be included in the scheme. Showing the Elements Selected by Different Symbols / Colors and Indicating Their Relationships. Wording of an appropriate title and legend of the symbols used.
- Modeling - Identifying and selecting the elements needed to model the phenomenon. Imaging (graphically, schematically) the phenomenon studied. Realizing the phenomenon using the developed model. Formulation of conclusions, deduced from arguments or findings.

  Experiment - Formulation of a hypothesis, based on known facts, on the process / phenomenon studied. Verifying the hypothesis by performing the processes / phenomena studied under laboratory conditions. Formulation of conclusions, deduced from arguments or findings.
- **Applied didactic strategies / technologies (specific for the discipline);**
- „Brainstorming", „Multi-voting"; "The round table"; "Group Interview"; "Case Study"; "Creative Controversy"; "Focus-group technique", "Portfolio".
  Virtual Practices

Methods of assessment (including an indication of how the final grade is calculated)
Current: front and / or individual control through
• (a) applying control tests,
• (b) solving the problems / exercises,

- (c) Analysis of case studies
- (d) performing some role-plays on the topics discussed.
- (e) control work

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

Current: Current checks during seminars and practical lessons, 4 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 final grade is calculated at the end of the discipline study - 50%; from test-control - 20% and oral interview - 30%. The average annual mark and the marks of all final stages of testing (test and oral answer) - are expressed in numbers according to the scoring scale (according to the table) and the final mark obtained is expressed in two decimal digits, to be entered in the notes 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.*

X. RECOMMENDED LITERATURE:

A. Compulsory:

1. Nicolau Gh., Terehov A., Năstase C., Nicolaiciuc V. Odontologie practică modernă. Chișinău: Nasticor, 2010, 448p.
2. Stanley J. Nelson. Wheeler's Dental Anatomy Physiology and Occlusion, Singapore,2010

3. Трезубов В.Н., Щербаков А.С., Мишнев Л.М., Фадеев Р.А. Ортопедическая Стоматология. Санкт-Петербург, 2002, 656 с.
4. Bratu D., Romînu M., Uram-Ţuculescu S. Aparatul Dento-Maxilar date de morfologie funcțională clinică. Timișoara, 1997, 938p.
5. Bîrsa Gh., Postolachi I. Tehnici de confecționare a protezelor dentare. Chișinău 1994.
6. Postolachi I. şi colab. Protetica Dentară. Chişinău, „Ştiinţa”1993
7. Chira Iulia. Morfopatologia Funcțională a Aparatului Dento-Maxilar. București. 1981.

B. Supplementary:

1. Ștefania Crăițoiu, Mihai Crăițoiu, Maria Florescu. Cavitatea orală Morfolagie normală și patologică.–Editura Medicală București ,1999
2. Щербаков А. С., Гаврилов Е. И., Трезуб В. Н., Жулев Е. Н. Ортопедическая Стоматология. Санкт-Петербург ИКФ "ФОЛИАНТ" 1998