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e e B	CD 8.5.1 CURRICULUM DIS	CIPLINĂ PENTRU	Redacția: Data:	09 08.09.2021
	STUDII UNIVERSITARE		PA	(G. 1/96
	FACULTY OF	STOMATOLOGY		
	STUDY PROGRAM IN	0911.1 STOMATO	LOGY	
	DEPARTMENT ()	F ORTHODONTIC	s	
	APPROVED	APPRO	VED	
at the meet	ing of the Committee for Quality	at the Council meeting	g of the Pac	ulty of
Assurance	and Evaluation of the	Stomatology 0	10 10 16	ner
Curriculum Minutes N	aoi	Minutes No. <u>A</u> of	a, rua.	wy
Committee	president, PhD, DMS,	Dean of the Faculty of	l Stomatolo	27
Associate	professor.	PhD, DMS, Associate	professor,	
Stepco Ele	na ter ayun	Solomon Oleg 🛛 🖉	Soleary	
	at the meeting of the Dep Minutes No.1 of Head of the I PhD, DMS, Ass Trifan Valentina	artment of orthodontic 24 august 2021 Department, neiate professor Mafore	Second Second	
	CURR	ICULUM		
	DISCIPLINE O	RTHODONTICS		
	Integra	ted studies		
Type of (course: Compulsory discipline			
	Chisi	nau, 2021		



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I. PRELIMINARY

• General presentation of the discipline: place and role of the discipline in the formation of specific competences of the vocational training program specialty:

Orthodontics is today an independent branch of dentistry; moreover, it has become a specialty that studies the orthodontic treatment of dent-maxillary anomalies as well as aspects encountered in certain facial deformity syndromes. The passing of the students' training to the clinical stages is done by familiarizing them with the specificity of the orthodontic assistance and the training of the orthodontist requires a high theoretical and practical training. The Discipline includes in more detail the actual orthodontic treatment based on a diagnosis whose purpose is to detect and evaluate the morpho-functional deviations of dento-maxillary anomalies.

Only on the basis of an in-depth and accurate diagnosis can the diagnosis be made and then the proper orthodontic therapy. One of the basic objectives of this module is the study of standardized teleradiography in orthodontics (1992 - Pacini and Carrera, 1931-Hofrath and Broadbent), which contribute to the scientific foundation of the orthodontic diagnosis and make decisions that take into account the individual cranio-facial morphology. The analysis of profile teleradiography is informative in all phases of orthodontic therapy: at the beginning of the treatment it complements the investigations and allows to draw important conclusions for the diagnosis and the elaboration of the treatment plan. After completing the treatment itself, it is often the most important investigation that decides the duration of the contentious phase and allows conclusions to be drawn on the completion of the treatment and the stabilization of the orthodontic outcome.

The Orthodontics discipline strategy is to provide the necessary information in the diagnosis and treatment of dento-maxillary abnormalities based on dentition, application of knowledge to the level of contemporary requirements to help improve the efficiency of orthodontic care.

• The mission of the curriculum (scope) in training:

Theoretical and practical training of students on the prevention, diagnosis, clinical manifestations and treatment of dento-maxillary abnormalities according to the reference plans.

- **Teaching language**: Romanian, English;
- **Beneficiaries:** students of the fifth year of the Faculty of Stomatology.



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II. ADMINISTRATION OF THE DISCIPLINE

Code of discipline		S.09.O.110	
Name of the discipline		Orthodontics	
Responsible for discipline		Trifan Valentina, PhD, associate professor Mihailovici Gheorghe, PhD, associate professor Lazarev Evghenii, university assistant	
Year	V	Semester	IX
Total hours including:			90
Course	24	Practical work	36
Seminars	24	Individual work	6
Evaluation form	Ε	Number of credits	3



III. TRAINING OBJECTIVES IN THE DISCIPLINE

• at the level of knowledge and understanding:

- \checkmark know the objectives of orthodontics;
- ✓ be aware of etiology, pathogenesis, clinical manifestations, methods of diagnosis and treatment of physiological and pathological dental occlusions according to the reference plans.

• at application level:

- ✓ establish psychological and verbal contact with children of different ages;
- \checkmark establish contact with parents in the treatment of children;
- ✓ perform palpation of soft tissues and facial bones, lymphoid nodes, salivary glands;
- ✓ perform the clinical examination of the orthodontic patient;
- ✓ determine symmetry and proportionality of the face, anthropometric indices;
- ✓ perform sounding, percussion and appreciation of tooth mobility;
- \checkmark complete the dental formula in children of different ages;
- ✓ possess the determination of static and dynamic occlusion in orthodontic patients;
- ✓ identify and interpret biometric indices on the study model;
- ✓ apply diagnostic methods of dento-maxillary anomalies in children and adolescents;
- ✓ interpret contact radiographs, orthopantomograms, results of cephalometry;
- \checkmark perform selective sanding as a method of interceptive treatment;
- ✓ perform dental arches impressions;
- ✓ perform casting and tethering of diagnostic models;
- ✓ have space maintainer adjustment;
- \checkmark apply the knowledge gained in assessing clinical tests;
- \checkmark solve clinical situation problems.

• integration level:

- \checkmark appreciate the importance of Orthodontics in the context of Medicine;
- ✓ to address creatively the problems of fundamental and clinical medicine;
- ✓ determine the interrelations between Orthodontics and other clinical disciplines;
- ✓ have skills to implement and integrate knowledge gained in clinical disciplines;
- \checkmark be able to objectively evaluate and self-assess the knowledge in the field of dentistry;
- \checkmark be able to assimilate and apply new achievements in Orthodontics;
- \checkmark be able to implement the knowledge gained in the research activity;
- ✓ be competent to use critical and reliable scientific information obtained using the new information and communication technologies;
- ✓ be able to use multimedia technology to receive, evaluate, store, produce, present and exchange information;
- \checkmark be able to acquire the totality of the didactic material, which will contribute to the management of the professional path.



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IV. PRIOR CONDITIONS AND REQUIREMENTS

Good knowledge of the subject is required in the field of fundamental medicine, therapeutic dentistry, orthopedic dentistry, oro-maxilo-facial surgery, etc.

Student of year V needs to meet the following criteria:

- knowledge of the language of instruction;
- confirmed competences in lyceum sciences (biology, chemistry, physics);
- digital competences (use of the Internet, document processing, electronic tables and presentations, use of graphic programs);
- skills obtained in preclinical and clinical dental disciplines: propaedeutic dentistry; orthopedic dentistry; prophylaxis of dental affections;
- ability to communicate and team work;
- qualities tolerance, compassion, autonomy.



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V. THE ORIENTAL TIMETABLE AND ORIENTATION OF HOURS

A. Courses (lectures):

Nr.	Nr. d/o TOPIC	
d/o		
1.	Methods to diagnose dento-maxillary anomalies. Clinical examination of the	4
	orthodontic patient. Radiological and functional methods used in orthodontic diagnosis.	-
	Theoretical argumentation of treatment with orthodontic appliances. Forces used in	
2.	orthodontics. Tissue transformations in device treatment. Principles of manufacturing	
	mobile and mobile devices.	
3.	Classifications of dento-maxillary abnormalities. Using classifications in clinical	4
	diagnosis.	-
Δ	Angle Class I malocclusions. Etiology, pathogenesis, clinical varieties, diagnosis.	4
	Devices used to treat this pathology.	
5	Malocclusion in sagittal plane. Causes and mechanism of development of Angle Class	0
5.	II and Class III malocclusions. Clinical forms, diagnostic and treatment methods.	o
	TOTAL	24

B. Practical work, seminars:

Nr.	T. TOPIC		Number of hours	
d/0		seminars	Practice	Individual
1.	Clinical examination of the orthodontic patient. General, facial, buccal-dental exam. Photostatic exam.	3	4	1
2.	Radiological examination in orthodontics. Variety, techniques. General notions of cephalometry.	3	4	1
3.	Classification of orthodontic appliances. Principles of action of orthodontic appliances.	2	4	
4.	Biomechanics of orthodontic forces in dental movements. Classification of orthodontic forces. Tissue transformations in orthodontic treatment.	2	4	
5.	Orthodontic removable appliances. Advantages, disadvantages. Characteristics of base, anchorages and assets.	3	4	1
6.	Orthodontic functional appliances. Advantages and disadvantages. The main types of mobile appliances and their feature.	2	4	
7.	Malocclusion Class I by Angle. Etiology, pathogenesis, clinical varieties, diagnostic and treatment methods.	3	4	1
8.	Malocclusion Class II by Angle. Etiology, pathogenesis, clinical varieties, diagnostic and treatment methods.	3	4	1
9.	Malocclusion Class III by Angle. Etiology, pathogenesis, clinical varieties, diagnosis and treatment methods. Prevention.	3	4	1
	TOTAL	24	36	6



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VI. REF<u>ERENCE OBJECTIVES AND CONTENTS UNITS</u>

Theme (Chapter) 1. Clinical examination of the orthodontic patient. General, facial, buccal-dental exam. Photostatic exam.

Objectives	Content units
define discipline - Orthodontics;	The main sections of the discipline
• to comment on the interaction of Orthodontics with	orthodontics - department of dentistry.
other dental disciplines;demonstrate knowledge about childhood ages.	Age periods of children
body development;	Health groups.
 to apply the knowledge and skills regarding psychosomatic development of the child at different ages; examine children with different teeth; to have the exobucal clinical examination of the orthodontic patient; have the endobuccal clinical examination in the three reference plans; be aware of the theoretical importance of the photostatic exam; to have the description of photos in the photostatic 	Psychic development of the child
exam;	
• apply the knowledge acquired to other disciplines;	
• to draw conclusions.	
Theme (Chapter) 2. Radiological examination in orth	iodontics. Variety, techniques. General notions
of cephalometry.	-
Objectives	Content units
 define the notion of cephalometry; know the technique of performing teleradiography; know the importance of radiological examination in orthodontic assistance; to know the variants of the radiological examination with intraoral film in orthodontics; to know the indications of the radiological methods with intraoral film; to know the radiological examination with extraoral film; know the particularities of the execution of the profile cephalometry; to have skin and skeleton determinations on the cephalometry; know the methods of cephalometric analysis: 	Various radiological examinations. Anatomo-physiological particularities of dento-maxillary apparatus development. Cephalometric analysis in various malocclusions



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Theme (Chapter) 3. Classification of orthodontic appliances. Principles of action of orthodontic appliances.

Objectives	Content units
• be familiar with the classification of orthodontic	Orthodontic treatment by means of
appliances used in children of different ages;	orthodontic instruments of various action.
• to know the clinical and laboratory stages for the	Assessment of the effectiveness of
manufacture of orthodontic appliances;	orthodontic treatment in children of different
• to know the orthodontic construction materials;	ages.
• evaluate the effectiveness of orthodontic treatment	
through orthodontic devices of different action;	
• know the components of the orthodontic	
appliances;	
• apply the knowledge acquired to other disciplines;	
• conclusions.	

Theme (Chapter) 4. Biomechanics of orthodontic forces in dental movements. Classification of orthodontic forces. Tissue transformations in orthodontic treatment.

Objectives	Content units
• to know the classification of orthodontic forces;	The importance of orthodontic forces in
• to know the variety of orthodontic forces in	dental movements in the three reference
various dental movements;	plans.
• be able to appreciate the importance of the	Determining the effectiveness of orthodontic
optimum force in dental movements according to	treatment.
the reference plane;	
• can appreciate the dangers of excessive forces in	
dental movements;	
• to know the notion of bone resorption and bone	
resorption in dental movements;	
• be able to determine tissue transformations in the	
three reference planes;	
• to know the tissue transformations at the TMJ	
level;	
• apply the knowledge gained to other disciplines.	
• to draw conclusions.	

Theme (Chapter) 5. Orthodontic removable appliances. Advantages disadvantages. Characteristics of base, anchorages and assets.

	Objectives	Content units
•	be familiar with the notion of a removable	Orthodontic treatment by movable
•	know the elements of the mobile construction:	situation and the child's age
•	to determine the directions for orthodontic	
	treatment through the movable construction;	
٠	to know the contraindications to the use of	



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٠	be aware of the contraindications to the use of the
	movable construction
•	be able to adjust the removable construction in the
	oral cavity;
•	to formulate conclusions.

Theme (Chapter) 6. Orthodontic functional appliances. Advantages and disadvantages. The main types of mobile devices and their feature.

	Objectives	Content units
•	to know the notion of a removable orthodontic	Orthodontic treatment by functional
	appliances;	reeducation.
•	know the parts of the mobile construction;	
•	can appreciate constructive occlusion;	
٠	be able to adjust mobile construction;	
٠	be aware of indications and contraindications to	
	the use of mobile construction;	
•	to draw conclusions.	

Theme (Chapter) 7. Malocclusion Class I by Angle. Etiology, pathogenesis, clinical varieties, diagnostic and treatment methods.

	Objectives	Content units
Γ	• to know the classification of dental-maxillary	Methods of diagnosis and orthodontic
	anomalies by Angle;	treatment of class I malocclusion Angles
	• be able to perform the exobuccal and endobuccal	according to teeth.
	clinical examination in patients with class I	
	malocclusion;	
	• be able to take the photometric exam;	
	• can achieve impressions with alginate masses of the	
	upper and lower jaws;	
	• • be able to perform molding of gypsum models and	
	their socket;	
	• be able to carry out the biometric study of	
	diagnostic models;	
	• to know the diagnostic and treatment objectives of	
	malocclusion Class I by Angle ;	
	• to draw conclusions.	
L		

Theme (Chapter) 8. Malocclusion Class II by Angle. Etiology, pathogenesis, clinical varieties, diagnostic and treatment methods.

	Objectives	Content units
٠	be familiar with the definition of class II	Methods of diagnosis and orthodontic
	malocclusion;	treatment of malocclusion of class II by
•	be able to perform the exobucal and endobuccal	Angle
	clinical examination in patients with class II by	
	Angle malocclusion;	



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• be able to take the photometric exam;
• can achieve impressions with alginate masses of the
upper and lower jaw.
• • be able to perform molding of gypsum models and
their socket;
• be able to carry out the biometric study of
diagnostic models;
• to know the diagnostic and treatment objectives of
malocclusion Class II by Angle;
• to draw conclusions.

Theme (Chapter) 9. Malocclusion Class III by Angle. Etiology, pathogenesis, clinical varieties, diagnosis and treatment methods. Prevention.

	Objectives	Content units
•	be familiar with the Angle Class III malocclusion	Methods of diagnosis and orthodontic
	definition;	treatment of class III malocclusion by Angle
•	be able to perform the exobucal and endobuccal	according to teeth.
	clinical examination in patients with Anglo-Class	
	III malocclusion;	
•	be able to take the photometric exam;	
•	be able to achieve impressions with alginate masses	
	of the upper and lower jaws;	
•	• be able to perform molding of gypsum models and	
	their socket;	
•	be able to carry out the biometric study of	
	diagnostic models;	
•	to know the diagnostic and treatment objectives of	
	malocclusion Class III by Angle;	
•	to draw conclusions.	



VII. PROFESSIONAL COMPETENCES (CY) AND TRANSVERSAL (CT) COMPETENCES AND STUDY FINDINGS

✓ PROFESSIONAL COMPETENCES (SPECIFIC) (CS)

- CP1. A thorough knowledge of etiology, pathogenesis, clinical manifestations and methods of diagnosis and treatment of sagittal malformations in children.
- CP2. Elaboration of the plan for the diagnosis, treatment and prevention of sagittal malocclusions in children according to the teeth.
- CP3. Use of medical techniques, instrumental and laboratory investigations, digital technologies in the diagnosis and treatment of sagittal malocclusions.
- CP4. Performing various practical exercises and procedures in the diagnosis, treatment and prevention of sagittal malocclusions in children based on the knowledge of the fundamental and clinical disciplines (including dental).
- CP5. Planning, coordinating and conducting health promotion activities and prophylactic measures to improve health and prevent dento-maxillary abnormalities in children at individual and community level, establish and implement complex dispensary plans applicable to school and pre-school colleges.
- CP6. Implementation of professional standards for assessment and quality assurance of dental services for children with dento-maxillary abnormalities. Knowledge of the basic principles and functional structure of the medical and orthodontic care especially for the children of the Republic of Moldova.

✓ TRANSVERSAL COMPETENCES (CT)

- CT1. Applying professional standards of assessment, acting according to professional ethics, as well as the provisions of the legislation in force. Promoting logical reasoning, practical applicability, assessment and self-assessment in decision-making.
- CT2. Performing activities and exercising the roles specific to team work in medical institutions and especially in dental care. Promoting the spirit of initiative, dialogue, cooperation, positive attitude and respect for others, empathy, altruism and continuous improvement of their own activity.
- CT3. Systematic assessment of personal competencies, roles and expectations, application of self-assessments of learned processes, acquired skills and professionalization needs, knowledge in information technologies, effective use of language skills, research and communication skills for quality dental services and adapting to the dynamics of policy requirements in health and for personal and professional development.



✓ FINAL STUDY

The student at the end of the course will be able to:

- be able to perform the exo-oral and endo-oral clinical examination in patients with sagittal malocclusion in children of various ages;
- to perform the impressions of both jaws with alginate masses, casting the study and work patterns, matching them and knowing the planning objectives of the treatment plan;
- to know modern impressions and adhesives for making orthodontic constructions according to the clinical case and the age of the patient;
- to make optimal decisions in providing orthodontic assistance to children with sagittal malocclusions;
- to apply the methods of psychological knowledge in the professional activity and in the everyday life of children in different age groups;
- to know various ways of psychological and moral support of children in the treatment of dento-maxillary anomalies.



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VIII. THE STUDENT'S INDIVIDUAL WORK

One of the least effective methods of pedagogical learning is passive obedience to courses, but practical performance is much more effective. For these reasons, Orthodontics discipline is the individual practice activity of each student with the guidance of the teachers.

Nr.	The expected product	Implementation Strategies	Evaluation criteria's	Deadline
1.	Working	Work systematically in the library	1. Quality of formed	During
	with books	and mediate.	judgments, logical thinking,	the
	and ICT	Exploring current electronic	flexibility.	semester
		sources on the subject.	2. The quality of the	
			systematization of the	
			informational material	
			obtained through its own	
			activity.	
2.	Report	Analysis of relevant sources on the	1. The quality of	During
		topic of the paper.	systematization and analysis	the
		Analysis, systematization and	of the informational material	semester
		synthesis of information on the	obtained through its own	
		proposed theme.	activity.	
		Compilation of the report in	2. Concordance of	
		accordance with the requirements	information with the	
		in force and presentation to the	proposed theme.	
		chair.		
3.	Case study	Selection and description of the	1. Analysis, synthesis,	During
	analysis	case study with malocclusions in	generalization of data	the
		the vertical and transversal plane.	obtained through own	semester
		Analysis of the causes of the issues	investigation.	
		raised in the case study. Prognosis	2. Formation of an algorithm	
		of the case investigated.	of knowledge based on the	
		Deduction of the expected outcome	obtained conclusions.	
		of the case.		



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IX. METHODOLOGICAL SUGGESTIONS FOR TEACHING-LEARNING-EVALUATION

• Teaching and learning methods used

The discipline of Orthodontics is taught in classical ways: with lectures and practical works. At the lectures the theoretical course is read by the course holders. In practical work students study the particularities of diagnosis, clinical picture, treatment and prevention of dento-maxillary abnormalities in children with various age groups.

For a more detailed understanding of the 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 - Power Point presentations.

• Applied didactic strategies / technologies (discipline specific)

Exposure, interactive lecture, group interview, debate, creative controversy, problem-solving, brainstorming, group work, individual study, working with textbook and manual, case study, problem solving, role play, simulation, interactive listening.

• **Evaluation methods** (including an indication of how the final note is calculated)

Current: frontal and / or individual control through

a) the application of tests,

(b) solving problems / exercises,

- (c) analysis of case studies
- (d) playing role plays on the topics discussed.
- (e) control work

The final: Exam.

At the Orthodontics discipline, the promotion exam is scheduled for the fifth year, semester IX. To the exam is not admitted the students with the average annual note under 5, as well as students who have not recovered absences from seminars and practical lessons.

The V-year promotion exam on Orthodontics is combined, consisting of the practical part, test SIMU and oral part.

The practical part provides the clinical case analysis, the execution of practical maneuvers and is assessed with grades from 1 to 10.

The test part consists of variants of 100 tests each of all subjects of the orthodontics discipline. The test is scored with note from 1 to 10.

For the oral exam 60 questions are selected and 20 tickets are prepared. Each ticket contains 3 questions. The oral exam is evaluated with grades from 1 to 10.

The average annual note is based on 3 totals, and the practical test is the average of the notes of the clinical case study and of the practical lessons from the lessons.

Students' answers are valued with the final mark consisting of: average annual score (coefficient 0.3), practical test (coefficient 0.2), test-control (coefficient 0.2) and oral part (coefficient 0.3).

Consultations are organized for students before the exam.



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Methods of mark rounding

The weighted sum of the notes from the current assessments and the final examination	Final note	Equivalent ECTS	
1,00-3,00	2	F	
3,01-4,99	4	FX	
5,00	5		
5,01-5,50	5,5	Ε	
5,51-6,0	6		
6,01-6,50	6,5	D	
6,51-7,00	7	D	
7,01-7,50	7,5	G	
7,51-8,00	8	C	
8,01-8,50	8,5	В	
8,51-8,00	9		
9,01-9,50	9,5		
9,51-10,0	10	A	

The average annual note and the notes of all the final examination (computer assisted, test, oral) - all will be expressed in numbers according to the scoring scale (according to the table), and the final obtained note will be expressed in two decimal digits will be transferred to the notes book.

Mark: Not presenting of the exam without good reason is recorded as "absent" and is equivalent to the 0 (zero). The student is entitled to 2 repeated claims of the unsuccessful exam.



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X. RECOMMENDED BIBLIOGRAPHY

A. Obligatory:

- 1. Avornic Lucia. Factori etiologici și de risc ai anomaliilor dento-maxilare. Recomandare metodică. Chișinău, 2019, 26 p.
- 2. Dorobăț V., Stanciu D. Ortodonție și ortopedie dento-facială. Editura Medicală, București, 2014, 502 p.
- 3. Fratu A. Ortodonție. Diagnostic, clinică, tratament. Editura Vasiliana '98, Iași, 2002, 551 p.
- 4. Proffit William R., Fields Henry W. Jr., David M. Sarver. Contemporary orthodontics. Fifth edition, ed. Mosby, 2013.
- 5. Trifan V., Godoroja P. Ortodonție: compendiu.Chișinău : Medicina, 2009.

B. Additional:

- 1. Graber T., Vanarsdall R., Vig K. Orthodontics, 4th Edition Current Principles and Techniques. Ed. C. V. Mosby Comp. St. Louis, 2005, 1232 p.
- 2. McDonald R., Avery D. Dentistry for the Child and Adolescent. 9th Ed. Mosby, 2011, 720 p.
- 3. Бушан М. Г. Справочник по ортодонтии. Кишинев, 1990 г.
- 4. Персин Л.С. Ортодонтия. Диагностика и лечение зубочелюстно-лицевых аномалий и деформаций. Учебник. Издательство ГЭОТАР-Медиа, Москва, 2016, 640 с.
- 5. Хорошилкина Ф.Я. Ортодонтия. Москва, Медицина, 2010 г., 591 с.