

1	Subject	Orthodontics			
2	Code	DOC503			
3	Study Program	Study Program of Integrated studies in dental medicine			
4	Organizing Institution (Unit, Institute, Chair, Department)	Ss. Cyril and Methodius University in Skopje, Faculty of dental medicine Department of orthodontics			
5	Educational degree (first or second cycle)	Integrated study			
6	Study year/semester	5 / 9 and 10	7	Number of credits	9
8	Teacher	Prof.dr.Lidija Kanurkova, Prof.dr.Gabriela Kurciewa Cuckova, Prof.dr. Biljana Dzipunova, Prof.dr. Natasha Tosheska-Spasova, Prof.dr. Cvetanka Bajraktarova Mishevaska			
9	Preconditions	Passed all compulsory courses of 5 and 6 semester. Signatures of 7 and 8 semester courses			
10	<p>Teaching goals: Achivement basic knowledge about growth and development in the orofacial region and dental arches. Knowledge about orofacial functions. Wider knowledge of orthodontic malocclusions. Wider knowledge of diagnostic methods in orthodontics. Knowledge of the types of orthodontic appliances, the manner of their action and the different types and procedures in orthodontic therapy.</p>				
11	Brief content				
	Theoretical course				Class
	Theoretical course in IX semester				
	Orthodontics, an introduction, to the definition of normal occlusion and malocclusion.				2
	Prenatal growth and development of the craniofacial skeleton.				2
	Postnatal growth and development of the craniofacial skeleton, neurocranium and viscerocranium.				3
	Growth and development of normal occlusion, first, second, third, fourth and fifth stages of normal occlusion.				3
	Anatomy, physiology, and function of orofacial muscles, anatomy and function of the temporomandibular joint.				3
	Functions in the orofacial region: breathing, breast-feeding, ingestion, chewing.				3
	Function of speech, function of the temporomandibular joint.				2
	Aetiology of malocclusions, general aetiological factors: heredity, impaired function of endocrine glands, general diseases and deficient nutrition.				3
	Local aetiological factors that condition the formation of orthodontic malocclusion.				3
	Malocclusion and classification of malocclusion. Irregularities of particular teeth.				2
	Irregularities of dental arches.				2
	Irregularities of the occlusion in sagital direction. Class I and Class II malocclusions according to Angle.				3
	Class III malocclusion according to Angle.				3
	Transversal irregularities of occlusion, unilateral and bilateral cross-bite. Vertical irregularities of occlusion, open and deep bite.				2
	Congenital anomalies, congenital cleft lip and palate. Congenital syndromes with changes in orofacial region.				3
	Diagnostic methods for determining orthodontic irregularities, anamnesis, clinical and functional examinations and analysis of facial photography.				3

Gnathometric analysis of dental casts.	3
Theoretical course in X semester	
Radiographic diagnosis in orthodontics, retroalveolar record, orthopantomography, and profile dental record.	2
Cephalometric radiographs and analysis.	2
Assessment of skeletal age using hand-wrist radiographs. Determining the dental age according Demirjan.	1
Biological basics of orthodontic therapy and biomechanics of orthodontic movement of teeth.	2
Planning of orthodontic therapy.	3
Orthodontic prevention and orthodontic interceptive methods.	3
Orthodontic therapy with active mobile devices.	2
Orthodontic therapy with functional appliances, a classic device according to Andresen Haupl.	2
Orthodontic therapy with reduced activators. Treating orthodontic malocclusion with the Frankel functional activator.	3
Orthodontic therapy with fixed appliances.	2
Treatment of orthodontic malocclusion by using fixed appliances with labiolingual technique and extraoral fixed appliances.	3
Extraction therapy, serial extraction according to Hotz. Interdisciplinary orthodontic therapy.	3
Retention appliances and positioners.	2
Total	75
Practical lessons:	Class
Practical lessons in IX semester	
Introduction to orthodontics, occlusion - features of normal occlusion, malocclusion, orthodontic terminology	2
Introduction to diagnostic methods in orthodontics	2
Taking an anatomical impressions from a phantom, for dental casts	2
Modeling of models, shaping models	2
Gnathometric analysis of dental casts, determination of upper and lower jaw midpoint, index of the palate, analysis of transversal width of the dental arches, analysis of the height of the dental arches	2
Analysis in mixed dentition according to the Moyers method, analysis of permanent dentition by the Bolton method	2
Analysis of dental arches symmetry, analysis of the of dental arches crowding according to Schmut method	2
Final diagnosis of gnathometric analysis	2
Analysis of retroalveolar radiography, orthopantomographic analysis, hand-wrist analysis	2
Cephalometric analysis, determining the lateral and medial points; angular and linear parameters	2
Cephalometric analysis by the method of Schwarz, Downs, Ricketts, Steiner and Bjork	2
Clinical examination of orthodontic malocclusions, presentation of patient's orthodontic card: history, intraoral and extraoral examination of the patient with orthodontic malocclusion	2
A demonstration of clinical functional examinations in patients with orthodontic malocclusions	2
Classification of malocclusions, examination and presentation of patients with irregularities of individual teeth	2

	Examination and presentation of patients with irregularities of dental arches		2	
	Practical lessons in X semester			
	Examination and presentation of patients with irregularities in the sagittal direction. Class I malocclusions according to Angle, gnathometric analysis and therapy plan		2	
	Examination and presentation of patients with irregularities in the sagittal direction. Class II division 1 malocclusions according to Angle, gnathometric analysis and therapy plan		2	
	Examination and presentation of patients with irregularities in the sagittal direction. Class II division 2 malocclusions according to Angle, gnathometric analysis and therapy plan		2	
	Examination and presentation of patients with irregularities in the sagittal direction. Class III malocclusions according to Angle, gnathometric analysis and therapy plan		2	
	Examination and presentation of patients with irregularities in the transversal direction, gnathometric analysis and therapy plan		2	
	Examination and presentation of patients with irregularities in the vertical direction – deep bite, gnathometric analysis and therapy plan		2	
	Examination and presentation of patients with irregularities in the vertical direction – open bite, gnathometric analysis and therapy plan		2	
	Multidisciplinary approach for patients with severe orthodontic anomalies		2	
	Orthodontic prevention and orthodontic interceptive methods		2	
	Presentation the patients with active mobile appliances		2	
	Presentation the patients with functional devices		2	
	Presentation the patients with reduced activators and Twin block appliance		2	
	Presentation the patients with fixed appliances		2	
	Presentation the patients with fixed appliances with a labio-lingual technique		2	
	Presentation the patients with retention appliances		2	
	Total		60	
	Seminars		Class	
12	Methods of studying: class room oriented lectures, interactive lectures, group work, practical training, seminar paper			
13	Total available time	270 classes		
14	Organization of the course	75 (45+30) classes - theoretical course, 60 (30+30) classes- practical course, 135 classes - home individual learning and other activities		
15	Forms of teaching activities	15.1.	Theoretical course	75 classes
		15.2.	Practical course, seminars	Practical course - 60 classes
16	Other forms of activities	16.1.	Project tasks	
		16.2.	Individual tasks	
		16.3.	Individual (home) learning	135 classes
17	Method of assessment	17.1.	Tests -2 (1 in IX sem) = 20 points, (1 in X sem) = 10 points	30 points
		17.2.	Active participation in theoretical (3 points) and practical (7 points) courses, seminar paper/project (oral/written presentation)	20 points
		17.3.	Final (oral) exam	50 points

18	Grading criteria (points / grade)	Up to 59 points	5 (five) (F)			
		from 60 to 67 points	6 (six) (E)			
		from 68 to 75 points	7 (seven) (D)			
		from 76 to 84 points	8 (eight) (C)			
		from 85 to 93 points	9 (nine) (B)			
		from 94 to 100 points	10 (ten) (A)			
19	Requirement for signature and taking the final exam	<p>The student is required to actively follow all of the planned activities.</p> <p>Conditional criteria for assessment of knowledge:</p> <p>In order to get a signature, the student should obtain minimum points in both theoretical and practical courses, and to present seminar paper;</p> <p>In order to take the final exam, the student should obtain the minimum points from activity and test;</p> <p>If the student has not obtained the minimum points in the continual assessments, he/she in next exam session will have paper part of the exam (40 points) and final exam (60 points)</p>				
20	Language of the course	English				
21	Method for evaluation of the quality of education	Anonymous student's evaluation of the subject, teachers and collaborators involved in the educational activities				
22	Literature					
	22.1.	Mandatory textbooks				
		No.	Author	Title	Publisher	Year
		1.	Proffit W. Fields HW, eds.	Contemporary Ortodontics	6 rd ed. St. Louis, Mo: Mosby	2018
		2.	Graber L, Vanarsdall R, Vig K	Orthodontics: Current Principles and Techniques	6 rd ed. St. Louis, Mo: Mosby	2019
		3.	Nanda R	Esthetics and Biomechanics in Orthodontics	Saunders; 2 nd ed	2012
	4.	L.Kanurkova, G.Kurcieva Cuckova, B.Dzipunova, N.Tosheska-Spasova, C.Bajraktarova Mishevaska	Contributions from theoretical lectures		2019	
	22.2.	Additional literature				
		No.	Author	Title	Publisher	Year
		1.	Burstone CJ, Kwangchul C.	The Biomechanical Foundation of Clinical Orthodontics	Quintessence Pub Co; 1 st ed.	2015
	2.	Littlewood SJ, Mitchell L	An Introduction to Orthodontics	Oxford University press, 5 th ed.	2019	