Attachment No. 3		Course program for the first cycle of studies
1.	Course title	Orthodontics
2.	Code	DMMOR5
3.	Study program	Dentistry - integrated first and second cycle of studies
4.	Organizer of the study program (unit, i.e., institute, department, division)	UKIM - Faculty of Dentistry – Skopje, Department of Orthodontics
5.	Degree (first, second, third	Integrated First and Second Cycle Studies

	cycle)				
6.	Academic year/semester	Year	5	Semester	9 и 10
7	Course workload expressed in ECTS credits	9			
8.	Teacher (in case of multiple teachers, designated teacher in charge)	Teacher in charge: Prof. Dr. Gabriela Kjurchieva Chuchkova Professors from the Department of Orthodontics			
9.	Language in which the curriculum is conducted	English			
10.	Necessary prerequisites for taking and passing the course	Completed all mandatory courses from the fourth year and passed all mandatory courses from the third year			
11.	Course objectives (competences) and learning outcomes:	The objective of the course is for students to be acquainted with normal occlusion and the keys to normal occlusion. Acquiring basic knowledge about the proper growth and development of craniofacial structures, functions in the orofacial region, and myofunctional balance in orthodontics, as well as the influence of etiological factors on the occurrence of orthodontic irregularities. Broader knowledge of diagnostic methods in orthodontics. Broader knowledge of orthodontic malocclusions. Knowledge of the types of orthodontic appliances, the way they work.			
12.	Detailed course content by chapters and units with learning outcomes for each chapter	Theoretical instruction - lectures 1. Chapter - Normal occlusion, growth and development, orofacial functions, and causes of orthodontic irregularities Orthodontics, introduction, normal occlusion, keys to normal occlusion, malocclusion definition 1 class Prenatal growth and development of craniofacial structures and dentition 2 classes Postnatal growth and development of craniofacial structures 2 classes Growth and development of normal occlusion (five stages of development) 2 classes Anatomy, physiology and function of orofacial muscles and TMJ 2 classes Functions in the orofacial region (breathing, breastfeeding, mastication, swallowing, speech) .....3 classes General etiological factors for the occurrence of orthodontic irregularities 2 classes Local etiological factors for the occurrence of orthodontic irregularities 2 classes Outcomes from chapter 1: The student will be introduced to the characteristics of normal occlusion, keys to normal occlusion and causes of orthodontic irregularities - malocclusions. Will acquire basic knowledge about the proper growth and development of craniofacial structures and dentition, about the functions in the orofacial region and the temporomandibular joint with special emphasis on myofunctional balance in orthodontics. Will learn the causes of deviations in the normal course of growth and development, as well as the crucial causes of malocclusions. 2. Chapter - Orthodontic diagnosis - History, clinical examinations 2 classes - Functional analysis 1 class - Facial photo analysis 1 class - Gnathometric analysis 2 classes - X-ray diagnostic procedures 1 class - Determining the dental age of patients on orthopantomographic images 1 class Determining the osseous age of patients 1 class Teleradiography analysis (radiocephalometric and radiocraniometric analyses) 2 classes Outcomes from chapter 2: The student is reintroduced to diagnostic procedures in			

orthodontics. They will learn about clinical, functional, and radiological examinations. Special review of gnathometric analysis as well as photo analysis, in order to be introduced to the basic causes of orthodontic irregularities, in order to recognize malocclusion.

3. Chapter - Malocclusions (20 classes)
Malocclusions and classification of orthodontic irregularities 2 classes
Irregularities of individual teeth and dental arches 3 classes
Irregularities of occlusion in the sagittal direction Class I according to Angle 1 class
-Irregularities of occlusion in the sagittal direction Class II according to Angle 3 classes
-Sagittal irregularity of occlusion in Class III according to Angle 3 classes
- Transverse irregularities of occlusion 2 classes
- Vertical irregularities of occlusion 2 classes
- Congenital anomalies, congenital clefts of the lip, alveolar ridge, and palate……2 classes
- Congenital syndromes with changes in the orofacial region 2 classes
Outcomes from chapter 3: The students are introduced to the concept of malocclusion and classification of orthodontic irregularities. They will learn about the morphological characteristics of irregularities of individual and group of teeth, dental arches, as well as anomalies in sagittal, transverse, and vertical directions, and type of diagnostic procedures in orthodontics. Special review of orthodontic anomalies within congenital syndromes and clefts.

4. Chapter - Orthodontic Therapy and Biomechanical Principles in Orthodontic Treatment (26 classes)
- Orthodontic Therapy Planning 1 class
- Bone Biology and Tooth Movement 1 class
- Biological Basis of Orthodontic Therapy and Biomechanics of Orthodontic Tooth Movement 2 classes
- Types of Forces for Tooth Movement 2 classes
- Classification of Orthodontic Devices 1 class
- Preventive and Interceptive Measures for Early Orthodontic Treatment 2 classes
- Treatment of Orthodontic Irregularities with Active Removable Devices 2 classes
- Treatment of orthodontic irregularities with functional devices 2 classes
- Treatment of orthodontic irregularities with fixed devices 2 classes
- Treatment of orthodontic irregularities with extraoral fixed devices and labiolingual technique 2 classes
- Treatment of orthodontic irregularities with functional devices combined with extraoral traction 2 classes
- Extraction therapy 1 class
- Treatment of adult patients 1 class
- Treatment of patients with clefts and syndromic diseases 2 classes
- Orthodontic treatment of patients with sleep apnea syndrome 1 class
- Retention and stabilization of orthodontic treatment 2 class
Outcomes from chapter 4: The students are introduced to the basic knowledge about the biological nature of orthodontics and basic biomechanical principles in the treatment of orthodontic patients. They will be introduced to the recommended preventive and interceptive measures for early orthodontic treatment. They will gain basic knowledge about the orthodontic treatment plan, types of orthodontic devices, orthodontic treatment in early mixed dentition, orthodontic treatment in late mixed dentition, and the most optimal period of orthodontic therapy. They will be introduced to the basic postulates for maintaining stable post-treatment results and retention.

5. Chapter - Interdisciplinary Orthodontics (4 classes)
- Orthodontic-restorative, prosthodontic, and implant therapy 1 class
- Orthodontic-periodontal therapy 1 class
- Orthodontic-surgical therapy 2 classes
Outcomes from chapter 5: The students are introduced to the multidisciplinary approach to solving clinical occlusal and aesthetic problems. They will acquire basic knowledge to recognize and explain the possibilities and indications for orthodontic-periodontal therapy, orthodontic-prosthodontic and implantological cooperation, as well as the indications for orthodontic-oral surgical treatment of impacted teeth. They will learn to recognize the functional disorders of the temporomandibular joint and the possibilities for treatment. To recognize the indications for orthodontic-orthognathic surgical therapy and the

		multidisciplinary approach to treatment of clefts. Total: .....75 classes Practical instruction - Introduction to orthodontics, normal occlusion, malocclusion 2 classes - Introduction to the etiological factors of orthodontic irregularities 2 classes - Introduction to diagnostic methods in orthodontics (anamnesis, clinical and functional examinations) 2 classes - Taking an anatomical impression, casting an impression, casting studio models for gnathometric analysis 2 classes - Gnathometric analysis in mixed dentition 2 classes - Gnathometric analysis in permanent dentition 2 classes - X-ray diagnostic procedures in orthodontics 2 classes - Analysis of orthopantomographic image 2 classes - Analysis of teleradiography image 2 classes - Analysis of photograph 2 classes - Classification of malocclusions (presentation and introduction to the patient's orthodontic record) 2 classes - Examination of patients with irregularities of individual teeth and dental arches (clinical and functional examinations, gnathometric analysis, X-ray diagnostics, and treatment plan) 4 classes - Examination of patients with sagittal irregularities Class II (clinical and functional examinations, gnathometric analysis, X-ray diagnostics, and treatment plan) 4 classes - Examination of patients with sagittal irregularities Class III (clinical and functional examinations, gnathometric analysis, X-ray diagnostics, and treatment plan) 4 classes - Examination of patients with transverse occlusion irregularities (clinical and functional examinations, gnathometric analysis, X-ray diagnostics, and treatment plan) 4 classes - Examination of patients with vertical occlusion irregularities (clinical and functional examinations, gnathometric analysis, X-ray diagnostics, and treatment plan) 4 classes - Examination of patients in treatment with active removable devices 2 classes - Examination of patients in treatment with functional devices 2 classes - Examination of patients in treatment with fixed orthodontic devices 2 classes - Examination of patients in treatment with orthopedic devices for extraoral traction 2 classes - Examination of adult orthodontic patients 2 classes - Examination of patients with orthodontic-surgical treatment of impacted teeth 2 classes - Examination of patients with congenital clefts of the lip, alveolar ridge, and palate 2 classes - Examination of patients with complex craniofacial deformities 2 classes - Examination of patients with retention devices 2 classes Total .....60 classes		
13	Interrelation of subjects	Medical and dental subjects		
14.	Detailed description of the teaching and working methods for the subject	Interactive instruction, working in small groups (exercises), and other forms set by the joint ECTS criteria.		
15.	Total available time	270 classes		
16.	Forms of teaching activities	16.1.	Lectures - theoretical teaching classes	75 classes
		16.2.	Exercises (laboratory, auditorium), seminars, teamwork: classes	60 classes
		16.3.	Practice: classes	
17.	Other forms of activities	17.1.	Project assignments: classes	
		17.2.	Independent assignments: classes	

		17.3.	Home study - assignments	135 classes
18	Signature requirements	In order to receive a signature, the student must attend theoretical instruction, actively participate in practical instruction, and take continuous tests. To take the final exam in an exam session, the student must have passed each of the planned continuous tests with a minimum of 60% points. If the student has not passed the continuous tests during the semester, the student takes a complete exam (in the exam session, they first take the written part of the exam, and then take the final oral exam). The grade for the course is formed according to the grade table, and based on the sum of the points from all activities, continuous tests, and the final exam.		
19	Grading method			
	19.1.	Tests: points	40	
	19.2.	Seminar paper/project, written and oral presentation: points	20	
		Activity and attendance at lectures and seminars: points	10	
	19.3.	Final exam: points	30	
20	Grading criteria (points/grade)	up to 59 points	5 (five) (F)	
		from 60 to 68 points	6 (six) (E)	
		from 69 to 76 points	7 (seven) (D)	
		from 77 to 84 points	8 (eight) (C)	
		from 85 to 92 points	9 (nine) (B)	
		from 93 to 100 points	10 (ten) (A)	
21.	Method of monitoring the quality of instruction	Self-evaluation by students, control by assistants in carrying out practical instruction and assessment of the students' success, as well as the pass rate of students who have passed the course		

22. Literature

22.1. Required literature

Ord. No.	Author	Title	Publisher	Year
1.	Gabriela Kjurchieva Chuchkova	Orthodontics for Doctors of Dentistry (Part One)	Faculty of Dentistry, UKIM, Skopje	2023
2.	Lidija Kanurkova	Orthodontics for Doctors of Dentistry (Part two)	Faculty of Dentistry, UKIM, Skopje	2023
3.	Biljana Djipunova, Natasha Tosheska Spasova	Gnatometric analysis	Faculty of Dentistry, UKIM, Skopje	2024

22.2. Additional literature

Ord. No.	Author	Title	Publisher	Year
1.	Group of authors, Editor: StjepanSpalj	Malokluzije	Naklada Slap	2024
2.	Martin Cobourne Andrew DiBiase	Handbook of Orthodontics	Mosby Elsevier	2010
3.	Laura Mitchell	An Introduction in Orthodontics	4th Edition Oxford University Press	2013