

19	Grading method					
	19.1.	Tests: points			30 points	
	19.2.	Seminar paper/project, written and oral presentation: points			10 points	
	19.3.	Final exam: points			60 points	
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.	Mona K. Marei	Regenerative Dentistry (Synthesis Lectures on Tissue Engineering)	Morgan and Claypool Publishers; 1 editio	2010
		2.	Rachel J. Waddington Prof. Dr., Alastair J. Sloan Prof. Dr.	Tissue Engineering and Regeneration in Dentistry: Current Strategies	John Wiley & Sons, Ltd.	2017
		3.	Platelet Rich Fibrin in Regenerative Dentistry: Biological Background and Clinical Indications	Miron Richard J., Dr., Ph.D., Choukroun, Joseph, M.D.	Blackwell Pub (US)	2017
		Additional literature				
	22.2.	Ord. No.	Author	Title	Publisher	Year
		1.	Jing Wang and YunFeng Lin	Mesenchymal Stem Cells and Craniofacial Regeneration Volume: 1	Bentham Books	2016

Attachment No. 3		Course program for the first cycle of studies			
1.	Course title	Temporomandibular joint disorders			
2.	Code	DMETM6			
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, Department of Prosthodontic Dentistry			
5.	Degree (first, second, third cycle)	Integrated First and Second Cycle Studies			
6.	Academic year/semester	Year	6	semester	11
7.	Course workload expressed	2			

	in ECTS credits	
8.	Teacher (in case of multiple teachers, designated teacher in charge)	Prof. Dr. Aneta Mijoska - Teacher in charge (teachers and associates from the Department of Prosthodontic Dentistry)
9.	Language in which the curriculum is conducted	English
10.	Necessary prerequisites for taking and passing the course	No
11.	Course objectives (competences) and learning outcomes:	Through theoretical teaching, the students are introduced to the issues of temporomandibular joint dysfunctions by establishing a diagnosis and choosing conservative or invasive treatment for temporomandibular joint and muscle irregularities.
12.	Detailed course content by chapters and units, with learning outcomes for each chapter	1. Chapter - Etiology of functional disorders in the masticatory system Introduction, concept and definition of TMD.....1 class Etiology of TMD (occlusion, trauma, psychosocial factors, stress, parafunctions).....1 class Outcomes from chapter 1: the students will learn about TMD and the etiological factors for the occurrence of the disorders 2. Chapter - Signs and symptoms of temporomandibular disorders Muscular symptoms - protective hypercontraction, localized muscle pain, myofascial pain, myospasm, myalgia, fibromyalgia, chronic pain.....1 class Joint symptoms - disc disorders, subluxations, dislocation, loose joint, inflammation, synovitis, capsulitis, arthrosis.1 class Chapter 2 Outcomes: The students will gain the competencies to recognize the signs and symptoms of TMD originating from the masticatory muscles, TMJ, and surrounding tissues Chapter 3 - History and examination of temporomandibular disorders Functional examination of the masticatory muscles and determination of normal and limited movement of the lower jaw, functional examination of the TMJ (presence of sounds or crepitus, palpation and auscultation), disc disorders and dislocations with and without reduction, headache and migraine....2 classes Outcomes from chapter 3: The students will be introduced to the procedures for properly performing the clinical examination and examination of muscle and TMJ disorders Chapter 4 - Diagnosis of temporomandibular disorders Diagnostic procedures - palpation, auscultation, registration of disorders in the movement of the lower jaw, examination of the teeth (mobility, cracks, fractures, hypercementosis, abrasive facets and abfractions, dental occlusion, central and centric relation, vertical dimension, eccentric and unstable contacts), examination of the joints (orthopantomograph, lateral tomography, CT, MRI, CBCT). 2 classes Outcomes from chapter 4: The students will learn about all available diagnostic clinical and paraclinical methods for the diagnosis of TMD/ 5. Chapter - General guidelines in the treatment of temporomandibular disorders Conservative (reversible) therapeutic methods.....1 class Non-conservative (irreversible) therapeutic methods.....1 class Outcomes from chapter 5: The students will learn about the two basic therapeutic methods in TMD, conservative and non-conservative approach, will learn about the first choice of therapeutic procedures, and how the patient is monitored in the further course of the disease Chapter 6. Treatment of masticatory muscle disorders Non-invasive treatment - pharmacotherapy, dietary regimen, cognitive therapy, stress therapy, relaxation, biofeedback therapy, physical therapy, laser, ultrasound, tens, acupuncture, passive and active myofunctional exercises, neuromodulators)1 class Outcomes from chapter 6: The students will be introduced to modern methods for the treatment of myofunctional symptoms of the disease, will learn

		modern procedures for electro and neuromodulatory therapy of TMD 7. Chapter - Treatment of temporomandibular joint disorders Conservative therapeutic procedures (education, manual manipulation, non-conservative therapeutic procedures (injections with corticosteroids, anesthetics, or hyaluronidase into the intraarticular space, joint surgery, arthroscopy, arthrotomy, discectomy)1 class Outcomes from chapter 7: The students will be introduced to the modern methods for the treatment of arthrogenic symptoms of the disease, will learn about modern procedures for the treatment of TMJs. 8. Chapter - Treatment of chronic mandibular hypomobility The term mandibular hypomobility - a chronic form of reduced mandibular mobility (ankylosis - fibrous and capsular, muscle contracture, and coronoid inconsistency), degree of severity. Therapeutic modalities for hypomobility - conservative and surgical approach.1 class Outcomes from chapter 8: The students will be introduced to the modern methods for the treatment of muscular and arthrogenic hypomobility of the lower jaw, and learn about possible options for improving the condition 9. Chapter - Therapy with occlusal intraoral inserts Introduction, concept and classification of occlusal inserts - splints, division according to material, place of placement and effect of action. Stabilization and restrictive therapeutic occlusal inserts...1 class Outcomes from chapter 9: The students will be introduced to the general knowledge about the use of occlusal inserts as a modern, conservative, reversible therapeutic procedure in the treatment of TMD. They will learn what splints are for the treatment of acute conditions with pain and limited opening, what devices are used in chronic joint diseases, what the effect of their action is, and what materials they are made of for the most effective long-term treatment of the disorder. 10. Chapter - General guidelines in occlusal therapy Reversible occlusal therapy - occlusal inserts Irreversible occlusal therapy - occlusal equilibration (selective scaling, occlusal adjustment), orthodontic and prosthodontic treatment (crowns and bridges), application of the "rule of thirds" in irreversible scaling, use of diagnostic studio models, factors that influence the choice of type of therapy.1 class Outcomes from chapter 10: The students will be introduced to the general knowledge of the use of reversible or irreversible occlusal therapy to achieve relief of the symptoms of the disorder, will acquire the knowledge to independently make decisions about the most appropriate therapeutic method in the treatment Total15 classes Practical teaching-seminars Covering topics from the relevant course, presentation of the topics by the students, and active involvement of the students in the discussion of the given issue. Total15 classes		
13.	Interrelation of subjects	Interrelation with Gnathology		
14.	Detailed description of the teaching and working methods for the subject	Interactive instruction, laboratory or clinical exercises, working in small groups, presentation and performance of laboratory procedures, demonstration of instruments and methods used, teamwork (according to the specifics of the course)		
15.	Total available time	60 classes		
16.	Forms of teaching activities	16.1.	Lectures - theoretical teaching classes	20 classes
		16.2.	Exercises (laboratory, auditorium), seminars, teamwork: classes	10 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	30 classes
18.	Signature requirements	In order to receive a signature, the students must fulfill the obligations during the theoretical instruction and seminars. To take the final exam, they must		

		pass the prescribed test.				
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	22.1.	Required literature				
		Ord. No.	Author	Title	Publisher	Year
		1.	Guguvchevski Lj.	Dysfunction of the temporomandibular joint		Skopje 2014
	22.2.	Additional literature				
		Ord. No.	Author	Title	Publisher	Year
		1.	Jeffrey P. Okeson	Management of temporomandibular disorders and occlusion, edition 6	Elsevier, Mosby	2008
		2.	Axel Bumann and Ulrich Lotzmann	TMJ Disorders and Orofacial Pain	Grammlich, Pliezhausen	2002

Annex No. 4