Attachment No. 3		Course program for the first cycle of studies			
1.	Course title	Basics of CAD/CAM technologies in prosthodontics			
2.	Code	DMECC5			
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 Prosthodontic Dentistry			
5.	Degree (first, second, third cycle)	Integrated First and Second Cycle Studies			
6.	Academic year/semester	Year	5	Semester	10
7	Course workload expressed in ECTS credits	2			
8.	Teacher (in case of multiple teachers, designated teacher in charge)	Prof. Dr. Sanja Panchevska, (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	none			
11.	Course objectives (competences) and learning outcomes:	The students will understand the digital workflow and integration of CAD/CAM systems in dental prosthodontics. The students will learn about the different types of digital impression systems, about the digital design of prosthodontic restorations using specialized CAD software, and about CAM manufacturing processes, including subtractive and additive technology (cutting and 3D printing).			
12.	Detailed course content by chapters and units,	Theoretical instruction - lectures Chapter 1 - Basics of CAD/CAM technologies in dentistry History and evolution of CAD/CAM technology in dentistry. 1 class			

	with learning outcomes for each chapter	Components and characteristics of modern CAD/CAM systems.....1 class Digital impression systems and protocols for working with intraoral and laboratory scanners ..... 1 class Outcomes from chapter 1: The students will have knowledge of the concepts and principles of CAD/CAM systems and their application in dental prosthodontics, and knowledge of the different types of digital impression systems. Chapter 2 - Design, manufacturing, and materials for CAD/CAM restorations Computer Aided Design (CAD) of prosthodontic restorations 1 class Computer Aided Manufacturing (CAM) of prosthodontic restorations - Subtractive manufacturing (cutting) and Additive manufacturing (3D printing). 1 class Modern materials for CAD/CAM restorations ..... 1 class Digital workflow in CAD/CAM prosthodontics - "Chair-side" CAD/CAM systems and clinical and laboratory workflow ..... 1 class - Temporary restorations made with CAD/CAM technology..... 1 class Outcomes from chapter 2:The students will learn about the process of digital design and manufacturing of prosthodontic restorations with CAD/CAM technology, including subtractive and additive manufacturing methods. Additionally, they will be introduced to modern materials used for digital restorations, as well as the workflow in clinical and laboratory practice. 3. Chapter - Clinical application of CAD/CAM technology in dentristy CAD/CAM technology for minimally invasive prosthodontic solutions - inlay, onlay, and overlay restorations ..... 1 class Aesthetic CAD/CAM veneers and precisely designed anterior restorations and integration with digital smile design ..... 1 class Fixed prosthodontic restorations (crowns and bridges) made with CAD/CAM technology ..... 1 class Prosthodontic restorations over implants with CAD/CAM technology - Definitive implant-supported restorations and transitional prostheses for immediate implant loading ..... 1 class CAD/CAM technology for the manufacture of total prosthesis ..... 1 class CAD/CAM technology for the manufacture of partial prosthesis - Metal vs. non-metal structures ..... 1 class Application of CAD/CAM technology in other areas of dentistry ..... 1 class Chapter 3 Outcomes: Students will learn how CAD/CAM technology is applied in various clinical situations, including minimally invasive restorations, fixed and removable prosthodontic constructions, and implant-supported restorations. They will also be introduced to the integration of digital smile design, as well as specialized applications of the technology in other branches of dentistry. Total: .....15 classes Seminars - From the first chapter - Fundamentals of CAD/CAM technology in dentistry ..... 3 classes - From the second chapter Design, fabrication, and materials for CAD/CAM restorations ..... 5 classes - From the third chapter Clinical application of CAD/CAM technology in dentistry. Total: .....15 classes		
13	Interrelation of subjects	Interrelation with Clinical Removable Prosthodontics and Clinical Fixed Prosthodontics		
14.	Detailed description of the teaching and working methods for the subject	Interactive instruction, working in small groups, presenting and performing clinical and laboratory procedures, teamwork		
15.	Total available time	60 часа		
16.	Forms of teaching activities	16.1.	Lectures - theoretical teaching classes	15 classes
		16.2.	Exercises (laboratory, auditorium), seminars, teamwork: classes	15 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				
19	Grading method				
	19.1.	Tests: points		1 Test 30 points	
	19.2.	Seminar paper/project, written and oral presentation: points		20 points	
	19.3.	Final exam: points		50 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.	Radi Masri, Carl F. Driscoll	Clinical Applications of Digital Dental Technology	Wiley Blackwell	2015
		2.	Stamenkovic D	Stomatoloska protetika Parcijalne proteze, drugo dopunjeno izdanje	Data status Beograd	2017
		3.	Authorized lectures			
	22.2.	Additional literature				
		Ord. No.	Author	Title	Publisher	Year
		1.	Han W at al	Design and fabrication of complete dentures using CAD/CAM technology	Medicine	2017;96:1
		2.	K. Alhallak E Hagi-Pavli A Nahkali	A review on clinical use of CAD/CAM and 3D printed dentures	British Dental Journal	2023; jan 9