Attachment No. 3		Course program for the first cycle of studies			
1.	Course title	Dental equipment			
2.	Code	DMEDE2			
3.	Study program	Dentistry - integrated first and second cycle of studies			
4.	Organizer of the study program (unit, i.e., institute, department, division)	University "Ss. Cyril and Methodius" in Skopje, 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	2	Semester	3
7	Course workload expressed in ECTS credits	2			
8.	Teacher (in case of multiple teachers, designated teacher in charge)	Prof. Dr. Emilija Bajraktarova Valjakova			
9.	Language in which the curriculum is performed	English			
10.	Necessary prerequisites for	Listened to all compulsory subjects from the first year			

	listening and taking the class	
11.	Course objectives (competences) and learning outcomes:	The student should get acquainted with the dental appliances and equipment that are necessary for the functioning of a dental clinic and the performance of the dental activity. The student acquires knowledge about the technical characteristics, the method of use, and in which area of dentistry a particular apparatus or equipment can be used.
12.	Detailed course content by chapter and units, with the learning outcomes for each chapter	Theoretical teaching - lectures Introduction to dental appliances and equipment, terminology...1 class Results: The student is introduced to the subject, the methodological units that will be presented, and is introduced to the "Rulebook on the necessary space, equipment and professional staff for establishing, starting work and performing health activity in health institutions" approved by the Ministry of Health. Dental unit - dental chair...1 class Results: The student learns about the technical characteristics of the dental chair, the constituent elements, and the support systems and their intended use, for the purpose of the ergonomic work of the dentist, the dental nurse, and the proper and comfortable sitting position of the patient. Compressors and dental (handpieces) devices...1 class Results: The student learns about the technical characteristics and purpose of compressors, micromotors, dental turbines, contra-angle handpieces, handpieces for extra-oral practice, as well as the instruments used with the specified handpieces. Multi-purpose dental instruments...1 class Results: The student learns about ultrasound devices and handpieces used for machine endodontics, retrograde root canal treatment, preparation of teeth for the crafting of crowns, and cavities for crafting inlays and onlays. Dental devices for air abrasion...1 class Results: The student learns about different air abrasion systems with extra-oral or intra-oral purposes, which use different types of abrasive material depending on the substrate being treated: aluminum oxide grains, calcium carbonate, sodium carbonate, glycine, as well as aluminum oxide grains coated with silicon dioxide. Diagnostic devices for hard dental substances...1 class Results: The student learns about multipurpose devices that, without the use of X-rays, allow reliable detection of carious lesions even in the earliest stages, detection of plaque, and concretions. Diagnostic devices for soft oral tissues...1 class Results: The student learns about devices that conduct screening of the oral mucosa and allow visualization of the abnormalities of the oral mucosa and early detection of premalignant dysplasia and oral carcinomas. Devices used in endodontics...1 class Results: The student learns about devices that examine the vitality of the pulp, determine the length of the root canals, allow detection of perforations of the wall of the roots, and determine the position of the apical foramen. During the lecture, the student will also learn about multipurpose devices that can determine the response of the pulp to thermal stimuli, root canal obstruction, tissue cauterization, and localized coagulation. Composite polymerization lamps, radiometer...1 class Results: The student learns about lamps used for polymerization of composite materials, but also a device that measures the intensity of the light with which polymerization is performed. Devices used in prosthodontic/orthodontic treatment...1 class Results: The student learns about devices that serve to remove fixed prosthodontic restorations, automatic mixing of printed materials, to register the bite force, and a digital occlusion analysis system, as well as an apparatus for vacuum shaping of foils for various purposes. Devices used in periodontal treatment...1 class Results: The student learns about devices for polishing the tooth surfaces, ultrasonic removal of supra- and subgingival deposits, multipurpose devices that, with various accessories, can be used in different specialties, as well as devices

		for determining focuses. Devices used in oral-surgical treatment...1 class Results: The student learns about the elements of an oral-surgical unit (surgical motor, control panel, surgical handpiece, irrigation carrier), thermocauterization device. Digital radiology devices...1 class Results: The student learns about devices for extraoral (orthopantomography 2-D and 3-D) and intraoral imaging. Lasers in dentistry...1 class Results: The student learns about the technical characteristics and indications for the application of "soft" and "hard" lasers. Digital clinical dentistry: chair-side CAD-CAM and 3-D printing...1 class Results: The student learns about the most modern technologies for making prosthodontic restorations, orthodontic aids, and devices that can be used in dental offices. Total: ..... 15 classes Seminars For each of the above theoretical method units, the students will research the literature and prepare seminar papers on the devices and equipment used in different specialties of dental practice, which they will present to their fellow students and the teacher in charge. Total: ..... 15 classes
13.	Interrelation of subjects	Connection to all clinical subjects where the dental devices used in the performance of the clinical activity are noted.
14.	Detailed description of the teaching and working methods for the subject	Interactive teaching, demonstration of devices and equipment in clinical offices, independent research, work in small groups during the preparation of seminars, working in a large group when presenting them.
15.	Total Available Time	60 classes

16.	Forms of teaching activities	16.1.	Lectures - theoretical teaching: classes	15
		16.2.	Exercises (laboratory, auditorium), seminars, teamwork: classes	15
		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

18	Signature requirements	Attendance at 60% of lectures and preparation of seminar work

19	Method of grading		
	19.1.	Tests: points	40
	19.2.	Seminar work/project, written and oral presentation: points	10
	19.3.	Final exam: points	50

20	Evaluation 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 teaching	Self-evaluation by students, assessment of the achieved student success, and the pass rate of students who have passed the course.	

22.	Literature					
	22.1.	Required literature				
		Ord. number	Author	Title	Publisher	Year
		1.	Emilija Bajraktarova Valjakova	Dental devices and equipment	Emilija Bajraktarova Valjakova	2025

		2.	Sonja Apostolska	Ergonomics	Sonja Apostolska	2014
	22.2.	Additional literature				
		Ord. number	Author	Title	Publisher	Year