1	Subject	**COMPUTERIZED DENTISTRY**			
2	Code	DKS608			
3	Study Program	Study Program of Integrated studies in dental medicine			
4	Organizing Institution (Unit, Institute, Chair, Department)	Faculty of Dentistry, Department for oral surgery			
5	Educational degree (first or second cycle)	Integrated study			
6	Study year/semester	6/11	7	Number of credits	2
8	Teacher	Prof.d-r M. Peeva Petreska, Prof.d-r E.Janev, Prof.d-r B.Velickovski, Prof.d-r O.Dimitrovski, Prof. d-r M. Kacarska,Prof.d-r D.Veleska-Stevkovska			
9	Preconditions	/			

10 Teaching goals:

Digital dentistry allows dental students learn how to examine patients, make diagnosis, plan treatment and perform dental procedures perfectly and efficiently. However, progresses in computer-based technologies including virtual reality simulators, augmented reality and computer aided design/computer aided manufacturing systems have resulted in new modalities for instruction and practice of dentistry. The purpose of this subject is to provide an overview of the unique image display capabilities of CT , CBCT ,MRI, CAD-CAM,3D,Digital Scan systems and to illustrate specific applications in clinical practice. The use of advanced radiographic assessment will be facilitated by multiplanar images including CT and CBCT.

Virtual reality dental simulators enable repeated, objective and assessable practice in various controlled situations. Superimposition of three-dimensional (3D) virtual images on actual images allows surgeons to simultaneously visualize the surgical site and superimpose informative 3D images of invisible regions on the surgical site to serve as a guide. The use of CAD/CAM systems for designing and manufacturing of dental appliances and prostheses has been well established.

This computer-based technologies, their application in dentistry and their potentials and limitations in promoting dental education, training and practice. Students will be able to choose from a broader spectrum of options in their field of practice by becoming familiar with new modalities of training softwares and practice.

11 **Brief content**

Theoretical course	Class
Computerized dentistry development and achievement in contemporary clinical practice	1
Types of CT Scanners: CT and CBCT Advantages and disadvantages of CT and CBCT	2
Accuracy of linear measurements using dental cone beam and conventional multislice computed tomography	1
Effective dose range for dental cone beam computed tomography scanners and conventional multislice computed tomography	1
Clinical Applications of Cone-Beam Computed Tomography and CT in Dental Practice	1
Computer-Based Technologies in Dentistry: Types and Applications (MRI,VR,AR,CAD-CAM,3D,Digital Scan)	1
Applications of computer-based technologies in dental aspects (Prosthodontics, Maxillofacial Surgery, Orthodontics, Periodontics, Restorative Dentistry)	1
3D implant treatment planning, 3D navigation, virtual implant training in dental implantology	1
Computer-Based Technologies in implantology : advantages and disadvantages	1
Digital scanning, surgical guide, CAD-CAM prosthetic restavration	1
Single Visit Dentistry a recent technologically that allows crowns, veneers, inlays and onlays, bridges, and implant restorations to be fabricated within the duration of a single dental appointment	1
Complete dentures fabricated with CAD-CAM technology and a traditional clinical recording method	1
Clinical Applications of Digital Dental Technology as a new standard approach protocol	1
Clinical Applications of Digital Dental Technology benefit for patients and	1

	Clinicians				
	Total				15
	Seminars				Class
	Education software training and reading CT and CBCT(anatomic and pathological data) Education software training 3D planning, 3D navigation and virtual implant placement Education software training digital scanning, surgical guide, CAD-CAM prosthetic restoration				15
12	Methods of studying: class room oriented lectures, interactive lectures, group work, practical training, seminar paper				
13	Total available time		60 classes		
14	Organization of the course		15 classes - theoretical course, 15 classes- seminars, 30 classes - home individual learning and other activities		
15	Forms of teaching activities	15.1.	Theoretical course	15 classes	
		15.2.	Practical course, seminars	15 classes	
16	Other forms of activities	16.1.	Project tasks		
		16.2.	Individual tasks		
		16.3.	Individual (home) learning	30 classes	
17	Method of assessment	17.1.	Tests	30 points	
		17.2.	Active participation, seminar paper/project (oral/written presentation)	10 points	
		17.3.	Final (oral) exam	60 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	The student is required to actively follow all of the planned activities. Conditional criteria for assessment of knowledge: In order to get a signature, the student should obtain minimum points in both theoretical and seminar courses, and to present seminar paper; In order to take the final exam, the student should obtain the minimum points from activity and test; 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)			
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	R.Masri, C. Driscoll	Clinical Applications of Digital Dental Technology	Wiley Blackwell	2015
		2	Dianne Rekow	Digital Dentistry	Quintessence Pub Co; 1 edition	2018
	22.2.	**Additional literature**				
		No.	Author	Title	Publisher	Year
		1.	Mirela Feraru	Dental Visualisation	Quintessence Pub Co; 1 edition	2018