

UNIVERSITY OF SARAJEVO

FACULTY OF DENTISTRY WITH CLINICS



**CURRICULUM AND SYLLABUS OF THE INTEGRATED STUDIES
OF DENTAL MEDICINE
I – XII SEMESTER**



Sarajevo, 2019

FIRST YEAR CURRICULUM*of the Integrated Studies of Faculty of Dentistry with Clinics of University of Sarajevo*

		Code SFS	Course	I semester		II semester		Classestotal	ECTS credits
				L	P	L	P		
Compulsory courses	1	SFSOM0101E	Human Anatomy	2	2	4	4	180	13
	2	SFSOM0102E	Histology and Embryology	2	2	2	2	120	10
	3	SFSOM0103E	Medical Biochemistry	4	2			90	9
	4	SFSOM0104E	Human Genetics and Cell Biology	4	0			60	4
	5	SFSOS0105E	Dental Morphology with Dental Anthropology	2	1			45	6
	Total								495
Elective courses	6	SFSIO0201E	English Language in Dentistry I			2	2	60	6
	7	SFSIS0106E	Introduction to Dentistry with History of Dentistry and Ethics	2	1			45	7
	8	SFSIM0202E	Hygiene and Social Medicine			1	2	45	6
	9	SFSIO0203E	Informatics			2	1	45	6
	10	SFSIM0107E	Introduction to Experiment and Laboratory	2	1			45	5
	11	SFSIM0204E	Biomechanics in Dentistry			2	1	45	6

Students have to choose 18 ECTS credits from the list

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	Minimal number of classes for 18 ECTS credits is	135	18
Total number of classes and ECTS credits		630	78

SECOND YEAR CURRICULUM
Faculty of Dentistry with Clinics

	Code SFS	Course	III semester		IV semester		Classese total	ECTS credits		
			L	P	L	P				
Compulsory courses	12	SFSOM0301E	Human Physiology		4	2	2	2	150	10
	13	SFSOM0401E	Pathology				4	2	90	9
	14	SFSOS0302E	The Basic Preventive Dentistry and Public Oral Health		2	3			75	5
	15	SFSOM0303E	Microbiology and Immunology		4	2			90	6
	16	SFSOM0402E	Pathophysiology				4	2	90	7
	17	SFSOS0304E	Dental Materials		3	0			45	5
	18	SFSOS0403E	Gnathology				1	2	45	6
	Total								585	48
Elective courses	19	SFSIO0305E	English Language in Dentistry II	Students have to choose 12 ECTS credits from the list	2	2			60	6
	20	SFSIS0404E	Legal Aspects of Dental Practice				2	1	45	6
	21	SFSIO0405E	Data Processing in Dentistry				2	1	45	3
	22	SFSIS0406E	Management in Dentistry				3	1	60	6

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Minimal number of classes for 12 ECTS credits is	120	12
Total number of classes and ECTS credits	795	69

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	Code SFS	Course	V semester		VI semester		Classestotal	ECTS Credits	
			L	P	L	P			
Compulsory courses	23	SFSOS0501E	Preclinical Prosthodontics	1	3	1	3	120	9
	24	SFSOS0502E	Dental Pathology Preclinic	1	2	1	2	90	6
	25	SFSOM0601E	Surgery			3	3	90	9
	26	SFSOM0503E	Internal Medicine	3	4			105	9
	27	SFSOM0504E	Basics of Clinical Radiology	3	2			75	5
	28	SFSOM0505E	Pharmacology and Toxicology	3	1	1	1	90	6
	29	SFSOS0506E	Dental Anesthesiology	2	2			60	4
Total							630	48	
Elective courses	30	SFSIM0507E	Neuropsychiatry	1	2			45	6
	31	SFSIM0602E	Ophthalmology			2	1	45	6
	32	SFSIS0603E	Public Health			2	1	45	6

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33	SFSIM0604E	Infectious Diseases	Students have to choose 12 ECTS credits from the list			2	1	45	6
Minimal number of classes for 12 ECTS credits is								90	12
Total number of classes and ECTS credits								810	72

FOURTH YEAR CURRICULUM
Faculty of Dentistry with Clinics

	Code SFS	Course	VII semester		VIII semester		Classes total	ECTS credits	
			L	P	L	P			
Compulsory courses	34	SFSOS0701E	Oral Surgery	2	3	2	3	150	10
	35	SFSOS0702E	Restorative Dental Medicine	1	3	1	6	165	9
	36	SFSOS0703E	Removable Prosthodontics	2	5	2	5	210	16
	37	SFSOS0704E	Oral Medicine-Pathology	1	2	2	2	105	9
	38	SFSOS0705E	Preclinical Endodontics	1	2			45	4
Total								675	48

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Elective courses	39	SFSIS0801E	Prophylaxis of Oral Diseases	Students have to choose 12 ECTS credits from the list			1	2	45	6
	40	SFSIS0706E	Orofacial Pain		2	1			45	6
	41	SFSIS0802E	Community Dentistry				1	2	45	6
	42	SFSIS0707E	Dental Radiology		2	1			45	6
	43	SFSIM0708E	Pediatrics		1	1			30	6
Minimal number of classes for 12 ECTS credits is									120	12
Total number of classes and ECTS credits									885	72

FIFTH YEAR CURRICULUM

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	Code SFS	Course	IX semester		X semester		Class total	ECTS credits	
			L	P	L	P			
Compulsory courses	44	SFSOS0901E	Pedodontics with Primary Prevention	2	3	2	3	150	9
	45	SFSOS0902E	Dentofacial Orthopedics-Orthodontics	2	3	2	4	165	10

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	46	SFSOS0903E	Fixed Prosthodontics	2	5	2	5	210	12
	47	SFSOS0904E	Basics of Periodontology	1	2	1	2	90	7
	48	SFSOS0905E	Endodontics	1	3	1	3	120	9
	Total							735	47
Elective courses	49	SFSIS1001E	Dental Trauma in Children			1	2	45	5
	50	SFSIS0906E	Oral Healthcare for Disabled Persons	2	2			60	7
	51	SFSIS0907E	Epidemiology of Diseases of the Periodontium	2	1			45	4
	52	SFSIS1002E	Presurgical Orthodontic Treatment			2	2	60	6
	53	SFSIS0908E	Clinical Gnathology	1	2			45	4
	Minimal number of classes for 13 ECTS credits is							120	13
Total number of classes and ECTS credits								990	73

SIXTH YEAR CURRICULUM
of the Integrated Studies of Faculty of Dentistry with Clinics of University of Sarajevo

		Code SFS	Course	XI semester		XII semester		Clasestotal	ECTS credits
				L	P	L	P		
Compulsory courses	54	SFSOS01101E	Maxillofacial Surgery	2	2	2	2	120	8
	55	SFSOM1102E	Otorhinolaryngology	1	2			45	5
	56	SFSOS1103E	Forensic Medicine and Dentistry	2	1			45	5
	57	SFSOS1201E	Final Course I: Restorative Dentistry – Prosthetic Dentistry			6	6	180	11
	58	SFSOS1202E	Comprehensive Pedodontics			3	3	90	6
	59	SFSOS1104E	Clinical Periodontology	1	2			45	5
	60	SFSOS1203E	Graduate Thesis						2
	61	SFSOS1105E	Dental Implants	2	2	2	2	120	8
Total								645	50
Elective courses	62	SFSIS1106E	Postendodontic Teeth Reconstruction	1	2			45	5
	63	SFSIS1107E	Dental Emergencies	1	2			45	7
	64	SFSIS1108E	Fixed Orthodontic Appliances	2	2			60	8
	65	SFSIS1109E	Ambulantal Oral and Maxillofacial Surgery	1	2			45	6
Students have to choose 10 ECTS credits from the list									

66	SFSIM1110E	Radiology		2	1			45	5
Minimal number of classes for 10 ECTS credits is								92	10
Total number of classes and ECTS credits								765	81

FIRST YEAR COMPULSORY COURSES

Code: SFSOM0101E		COURSE TITLE: HUMAN ANATOMY	
Level: undergraduate	Year: I	Semester: I and II	ECTS credits: 13
Course status: compulsory		Total classes: 180	
Professor in charge:			
Entry requirements: No entry requirements			
1. Course objectives	<p>Anatomy studies the normal structure of the human body. The aim of the course is adopting its content, through systemic and topographic anatomy, needed for further training within theoretical and clinical subjects of dentistry studies. Particular attention is paid to knowledge of topographic relationships of individual regions and organs, with the aim of training students for future operational interventions and other clinical needs in dental practice. During a compulsory curriculum, dentistry student has to prevail course content from osteology, joint and muscular system, as well as the organs of the head and neck with their nerves supply, vascularization and lymphatic drainage, relevant for diagnostic and therapeutic purposes. It is mandatory to master the capital nerves with a special emphasis to its connection with central nervous system and sensory organs.</p> <p>The student should also be familiar with the topography of the human body related to individual organs and organic systems.</p>		
2. Course purpose	<p>Course purpose is to teach the students about systemic and topographic human anatomy, with a special focus on head and neck regions, and getting necessary knowledge for quality and successful monitoring of preclinical and clinical medical and dentistry subjects.</p>		

<p>3. Course outcomes</p>	<p>Through this course the student will adopt the following knowledge:</p> <p>Module 1. The locomotor system. Introduction to anatomy, division of anatomy, anatomical nomenclature, orientation levels of the human body. General and special osteology. General and special syndesmology. General miology.</p> <p>Module objective: Students should be familiar with anatomical nomenclature and Latin terminology, bone morphology of the head, skeleton of the head as a whole, as well as with head and neck joint system. In this part the student will receive informations about the bones of the corps and limbs, and about the basic elements of the muscular system.</p> <p>Module 2. Splanchnology. Blood vessel and lymphatic system - general part. Heart and mediastinum, morphology, position and division. Respiratory system, morphology, position and division. Digestive system, morphology, position and division. Urinary system, morphology, position and division. Male and female genital system, morphology position and division. Endocrine system and skin, morphology, position and division.</p> <p>Module objective: The student should be familiar with the morphological principles of the composition of cardiovascular, respiratory, digestive, urogenital, endocrine and integumentary system, of vascularization, and of mutual topographic relationships of these components.</p>
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	<p>Module 3. Topographic anatomy of the head and neck. Anatomical surgical neck regions (musculature, blood vessels and nerves, lymph vessels and nodes, anatomical relationships of the nervous and bone structures, projections of the neck organs). Organs in the head and neck area from the aspect systematic and topographic anatomy. Anatomical surgical region of the head (musculature, blood vessels and nerves, lymph vessels and nodes, anatomical relationships between the vessels, nervous and bone structures). Module objective: The student needs to acquire knowledge about the head and neck region as a whole, muscles, blood vessels, lymph nodes and innervation areas of cranial nerves, as well as about topographic head and neck spaces with their projections and organ relations.</p> <p>Module 4. Neuroanatomy and anesthesiology. Anatomical and functional division. Neuroanatomical terminology. Central nervous system (CNS) orientations. Elements of composition (neuron, neuroglia, synapse). CNS morphology. Cranial nerves. Overview of the main CNS sensible, motor and sensory pathways. CNS vascularization and meninges. The general principles of organization of peripheral nervous system. Vegetative nervous system. Visual organ, vestibulocochlear organ, gustative organ and olfactory organ. Module objective: Introduce to student with a basic morphofunctional principles of organization and importance of the central and peripheral nervous system, the sensory system of our organism.</p> <p>Through the course the student will overwhelm the following skills, which he needs to know after having attended the classes:</p> <ol style="list-style-type: none"> 1. Understanding the anatomical nomenclature of Latin terminology 2. Orientation of the bones of the head with a special emphasis on knowledge of the topographic spaces of the skull 3. Mechanics of movement in the head and neck joints individually, connections between joint bodies. 4. Recognizing the macroscopic structure of the heart, the respiratory, digestive, urogenital, endocrine system and skin 5 Recognition of muscles, blood vessels and lymph nodes of the head and neck, and innervation areas of the cranial and spinal nerves. 6. Recognizing the topographic spaces of the head and neck, projections and relationships of head and neck organs. 7. Recognition of morphology and topography of CNS and sense organs. The skills that a student needs to know to practically perform after having attended classes are as follows: <ol style="list-style-type: none"> 1. Orientation on models (human and artificial). Identifying organs individually 2. Identification of anatomical structures and their interrelations. 3. Dissection of topographic regions of the head and neck of the cadaver. 4. Orientation on horizontal, frontal and sagittal sections in regions of the head and neck. 5. Practical orientation in skeletically and holotopically relationships of internal organs in anatomical models.
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	<p>After studying course lectures, a student should adopt the following attitudes:</p> <ol style="list-style-type: none"> 1. To observe a human as a morpho-functional entity through knowledge of certain anatomical structures from the aspect of systematic anatomy. 2. To know that without the knowledge acquired from this course it will not be able to learn and understand complex topographic relationships within the human body, especially of the head and the neck region, and also it will not be able to learn and understand the function and pathological changes in human organism, which is a prerequisite for further overwhelming of knowledge and skills in clinical dentistry and medicine.
<p>4. Learning methods</p>	<p>Learning methods: The course will be performed in the form of: - lectures ex cathedra for all students, - practicals for groups of students. During the course period, the students will be enabled to study independently isolated parts of the skeleton, joints and organs</p>
<p>5. Methods of student knowledge assessment</p>	<p>Evaluation of student knowledge in module 1 (first partial exam) will be done in form of oral examination, with three questions asked. If this module is passed, it will be recognized and not evaluated again at the final exam. Maximal number of points which can be achieved at the first partial exam is 24, minimal is 9.</p> <p>Evaluation of knowledge in module 2 (second partial exam) will be done by multiple choice questionnaire (MCQ) test of 40 questions. If this module is passed, it will be recognized and not evaluated again at the final exam. Maximal number of points which can be achieved at the first partial exam is 24, minimal is 8.</p> <p>Evaluation of student knowledge in module 3 (third partial exam) will be done by oral examination, with three questions asked, in a form of identification of anatomical structures on anatomical models and pictures. If the module 3 is passed, it will be recognized and not evaluated again at the final exam. Maximal number of points which can be achieved at the first partial exam is 24, minimal is 8.</p> <p>Evaluation of student knowledge in module 4 (fourth partial exam) will be done by written exam (essay), with a four questions asked. If this module is passed, it will be recognized and not evaluated again at the final exam. Maximal number of points which can be achieved at the first partial exam is 28, minimal is 12.</p> <p>Students who were passed partial exams will have to pass final exam, which has practical and theoretical part. Practical part of the final exam is based on topographic anatomy of the head and neck, and will be evaluated by 24 points maximally. Theoretical part is composed of further elements: head bones – maximally 8 points, joints and other junctions of the head and neck – maximally 8 points, head and neck organ – maximally 8 points,</p>

	<p>neck organ – maximally 8 points, thoracic organ – maximally 6 points, abdominal and pelvic organ – maximally 6 points, CNS – maximally 8 points, cranial nerve – maximally 8 points, visual organ – maximally 8 points, vestibulocochlear organ – maximally 8 points.</p> <p>Final grade will be formed as follows: 10 (A) – 95-100 points, 9 (B) –85-94 points, 8 (C) – 75-84 points, 7 (D) – 65-74 points, 6 (E) –55-64 points, 5 (F, FX) – below 55 points.</p>
6. Recommended literature	<ol style="list-style-type: none"> 1. Moore KL, Dalley AF. Clinically oriented anatomy. 5th edition. Lippincott Williams & Wilkins; 1999. 2. Drake RL, Vogl W, Mitchell AWM. Gray's Anatomy for Students. Elsevier Churchill Livingstone; 2005. 3. Haines DE, Neuroanatomy; An Atlas of Structures, Sections and Systems. Eight edition, USA: Lippincot Williams & Wilkins; 2012. 4. Waschke, F. Paulsen. Sobotta Atlas of Human Anatomy 15th Edition. Elsevier: 2012.
7. Exam questions	Exam questions are corresponding to the theoretical and practical topics in the course weekly teaching plans in I and II semester.

WEEKLY TEACHING PLAN

I SEMESTER

Week	Course form and content	Number of classes
Week 1	Lecture: Introduction to anatomy. Historical development. Division of anatomy. Anatomical position and orientation levels. Anatomical terminology. Division of systematic anatomy. Skull as a whole, division and composition, frontal bone, parietal bone	2
	Practicals: Skull as a whole, division and composition, frontal bone, parietal bone	2
Week 2	Lecture: occipital bone, sphenoid bone	2
	Practicals: occipital bone, sphenoid bone	2

Week 3	Lecture: temporal bone, canals in temporal bone, tympanic cavity	2
	Practicals: temporal bone, canals in temporal bone, tympanic cavity	2
Week 4	Lecture: ethmoid bone, cranial cavity (division, cranial base, anterior, middle and posterior cranial fossa, calvaria), fontanelle	2
	Practicals: ethmoid bone, cranial cavity (division, cranial base, anterior, middle and posterior cranial fossa, calvaria), fontanelle	2
Week 5	Lecture: maxilla, palatine bone, zygomatic bone, nasal bone, vomer, inferior nasal concha, lacrimal bone	2
	Practicals: maxilla, palatine bone, zygomatic bone, nasal bone, vomer, inferior nasal concha, lacrimal bone	2
Week 6	Lecture: Mandible, hyoid bone, craniofacial cavities (nasal and orbital cavity, temporal fossa, infratemporal fossa, pterygopalatine fossa)	2
	Practicals: Mandible, hyoid bone, craniofacial cavities (nasal and orbital cavity, temporal fossa, infratemporal fossa, pterygopalatine fossa)	2
Week 7	Lecture: general syndesmology (division of joints between bones, division and characteristics of immovable connections, joints, joints elements, division of joints). General miology (types of muscular tissue, characteristics of striated muscular tissue, attachment and outside look of skeletal muscle, accessory structures, muscular function).	2
	Practicals: Division of connections between bones, division and characteristics of immovable connections, joints, joints elements, division of joints)	2

Week 8	<p>Lecture: Connective and cartilaginous junctions between head bones, temporomandibular joint, atlantooccipital joint, atlantoaxial joint. Vertebral junctions.</p> <p>Practicals: Connective and cartilaginous junctions between head bones, temporomandibular joint, atlantooccipital joint, atlantoaxial joint. Vertebral junctions.</p>	2 2
Week 9	First partial exam	
Week 10	<p>Lecture: Systematic anatomy. Division and significance. Head and neck organs. Respiratory system, basic anatomical characteristics, function. Upper part of the respiratory system-external and internal nose parts, paranasal sinuses, larynx, trachea (overview). Digestive system, basic anatomical characteristics, function. Oral cavity, division, borders, walls. Lips, cheeks, gums, teeth. Proper oral cavity (hard palate and soft palate, tongue), large and small salivary glands, pharynx (overview).</p> <p>Practicals: Upper part of the respiratory system-external and internal nose parts, paranasal sinuses, larynx, trachea. Digestive system, basic anatomical characteristics, function. Oral cavity, division, borders, walls. Lips, cheeks, gums, teeth. Proper oral cavity (hard palate and soft palate, tongue), large and small salivary glands, pharynx.</p>	2 2
Week 11	<p>Lectures: Chest and chest cavity (examination of muscular and dermal elements) General angiology, basics of the blood and lymphatic system composition, large and small circulation. Heart, morphology, position, composition, vascularization, lymphatic drainage. Bronchi and lungs (morphology, structure, vascularization, lymphatic drainage), pulmonary pleura. Rear mediastinum (esophagus, thoracic duct, right lymphatic duct, aorta, inferior vena cava).</p> <p>Practicals: Heart (morphology, position, composition, vascularization, lymphatic drainage), bronchi and lungs, pulmonary pleura.</p>	2 2

Week 12	Lectures: abdominal and pelvic cavity (division and basic anatomical characteristics). Esophagus, stomach, small intestine, (duodenum, jejunum, ileum), large intestine, liver, bile ducts, pancreas, spleen (morphology, composition, vascularization, innervation, lymphatic drainage).	2
	Practicals: Esophagus, stomach, small intestine, (duodenum, jejunum, ileum), large intestine, liver, bile ducts, pancreas, spleen (morphology, composition, vascularization, innervation, lymphatic drainage).	2
Week 13	Lecture: Urinary system-examination, kidneys, macroscopic anatomy, composition, ureter, urinary bladder, female urethra. Reproductive organs of the man (morphology, structure, vascularization, innervation, lymphatic drainage).	2
	Practicals: Kidney, ureter, urinary bladder, female urethra, testicle, sperm extraction channels, male reproductive accessory glands	2
Week 14	Lecture: Female reproductive organs. Endocrine system (morphology, structure, vascularization, innervation, lymphatic drainage)	2
	Practicals: Ovary, Fallopian tube, uterus, external female genital organs, pituitary gland, epiphysis, thyroid gland, parathyroid glands, adrenal gland	2
Week 15	Second partial exam	

II SEMESTER

Week	Course form and content	Number of classes
Week 1	Lecture: Oral cavity, division, borders, walls. Lips, cheeks, gums, teeth. Proper oral cavity (hard and soft palate, tongue).	4
	Practicals: Facial regions: oral, facial, parotidomasseteric, nasal, infraorbital and orbital region (borders, topography, muscles, blood vessels, nerves, lymph, contents of orbit)	4

Week 2	<p>Lecture: Large and small salivary glands. Anatomical division of the nose (outer nose and nasal cavity), paranasal sinuses.</p> <p>Practicals: Frontal, auricular, occipital, and temporal region (borders, topography, muscles, blood vessels, nerves, lymph, epicranium)</p>	<p>4</p> <p>4</p>
Week 3	<p>Lecture: Esophagus (position, boundaries, outer appearance, structures, esophageal cavity). Infratemporal and pterygopalatine fossa (walls and contents; masticatory muscles, trigeminal nerve, maxillary artery and veins). Parapharyngeal and retropharyngeal space (walls and contents with special reference to the four last cranial nerves and sympathetic trunk).</p> <p>Practicals: Anterior cervical region, borders, topography, suprahyoid and infrahyoid muscles, blood vessels, nerves. Projection points of pharynx and larynx, thyroid gland, access to the larynx and cervical part of trachea. Lateral cervical region (boundaries, topography, muscles, blood vessels, nerves, lymph). Posterior cervical region (boundaries, topography, muscles, blood vessels, nerves, lymph)</p>	<p>4</p> <p>4</p>
Week 4	<p>Lecture: Larynx (position, boundaries, outer appearance, structure, laryngeal cavity). Trachea (position, boundaries, outer appearance, structure). Neck regions, neck topography on coronal, sagittal and horizontal cross sections.</p> <p>Practicals: Submandibular, carotid and retromandibular region (boundaries, topography, muscles, blood vessels, nerves, lymph)</p>	<p>4</p> <p>4</p>
Week 5	<p>Lectures: Overview of the arterial, venous and lymphatic system of the head and neck.</p> <p>Practicals: Overview of the head and neck regions in the whole</p>	<p>4</p> <p>4</p>

Week 6	Lectures: Cranial nerves (functional characteristics, pathways and peripheral distribution). Anatomic basis of regional anesthesia on the head and neck. Spinal nerves. Cervical and brachial plexus. Overview of sympathetic and parasympathetic system in the head and neck.	4
		4

15

	Practicals: Cranial nerves (functional characteristics, pathways and peripheral distribution). Cervical and brachial plexus.	
Week 7	Third partial exam	
Week 8	Lecture: Division of the nervous system, neuroanatomic terminology, elements of the nervous system structure (neuron, neuroglia, synapse), development. Spinal cord (external morphology, gray and white matter, vascularization, meninges, spinal nerve organization, nerve plexus-overview, anatomical basis of the reflex).	4
	Practicals: CNS parts, peripheral nervous system, orientation axes, spinal cord-external morphology, internal composition, spinal nerves, plexus and peripheral nerves	4
Week 9	Lecture: Cerebral trunk, position, parts, medulla oblongata, pons, mesencephalon, (external morphology, organization of gray and white matter)	4
	Practicals: Medulla oblongata, pons, mesencephalon, external morphology, internal composition, reticular formation and relay nuclei, cross-sections	4

Week 10	Lecture: Cerebellum, (position, external morphology, functional and phylogenetic division, small brain structure). Diencephalon (position and division, thalamus, morphology and internal composition). Epithalamus, epiphysis cerebri, metathalamus, subthalamus, hypothalamus, hypophysis cerebri, morphology and internal composition.	4
	Practicals: Cerebellum, morphology and internal composition, neuronal circuits. Diencephalon, division and external morphology, diencephalon at cross sections, thalamus. Diencephalon, structure (model), hypothalamic-pituitary axis	4
Week 11	Lecture: Telencephalon, position, division and external morphology (internal structure, functional organization of the cortex, commissures and associative pathways of telencephalon, basal ganglia)	4
	Practicals: Telencephalon (position, division and external morphology). The internal structure of the cerebrum-sagittal, coronal and axial sections	4
Week 12	Lecture: Sensitive and motor pathways, sensory pathways and limbic system. CNS meninges, cerebrospinal liquor, chamber system. CNS vascularization.	4
	Practicals: Overview of CNS pathways and their importance in functional and clinical anatomy, cranial and spinal cord meninges, ventricular system, subarachnoid and spinal canal spaces. Internal carotid artery system and vertebrobasilar system, superficial and deep cerebral veins, dural venous sinuses	4
Week 13	Lecture: Visual organ	4
	Practicals: Sclera, cornea, uvea and retina, dioptric eye apparatus, auxiliary eye apparatus	4
Week 14	Lecture: Vestibulocochlear, gustatory and olfactory organs.	4
	Practicals: Outer, middle and inner ear, tympanic cavity, mastoid antrum. Gustatory and olfactory organs and pathways.	4

Week 15	Fourth partial exam	
Week 17-18	Final exam	
Week 19-20	Final exam/retake	

Code: SFSOM0102E	COURSE TITLE: HISTOLOGY AND EMBRYOLOGY		
Level: undergraduate	Year: I	Semester: I and II	ECTS credits: 10
Course status: compulsory			Total classes: 120
Professor in charge:			
Entry requirements: No entry requirements			
1. Course objectives	<p>Module 1. The aim of this module is to gain knowledge about the morpho-functional characteristics of cells and tissues of the human organism for whose light and electron microscopic observation is necessary, in addition to the basic knowledge in histotechnology. To acquire knowledge about the normal structure of the body as an integration of diverse cell populations, as well as the structural elements of the intercellular matrix and fibers.</p> <p>Module 2. The aim of this module is to teach the students about the basics of organs and organ systems, morpho-functional characteristics at the level of light and electron microscopy according to the hierarchical model of the human body organization. At the same time, the student investigates the human development through basic knowledge in the domain of embryology, which allows them to understand complex relationships in the human body. This is important for the future of medical practice in the sense of the correct interpretation of developmental anomalies. The acquired knowledge from histology and embryology is the basis for understanding the pathomorphological changes in the etiopathogenesis of the diseases at the cellular, tissue and organ level.</p>		

2. Course purpose	<p>The purpose of this course is to understand that the human body and that its development is an integrity of individual structural components and their organizational modalities. Also, students are supposed to gain practical skills in recognizing important cytological and histological structures by using light and electron microscopy analysis.</p> <p>The theoretical knowledge of human histology and embryology is provided through lectures and interactive learning, while practical work enables the mastering of the light microscopy technique, observation and analysis of the histological slides of adult and fetal organs/tissues and the analysis of electron micrographs.</p>
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<p>3. Course outcomes</p>	<p>Through the modules, the student will acquire the following knowledge:</p> <p>Module 1. Functional cytology and histology of tissues The aim of the module is to introduce the student with the normal microscopic and submicroscopic organization of human cells in the sense of their morphological and functional diversity; to emphasize the significant relationship between alterations on a cellular level and some clinically manifested disorders, both of which are visible by using different histotechnological approaches. The aim of this module is to introduce the student with the normal microscopic and submicroscopic structure of human tissues, their morphological and functional differences and distribution within the organs and organ systems.</p> <p>Module 2. Histology of the organs and human embryology The aim of this module is to acquire a basic knowledge in histology of organs and organ systems, as well as their development from the aspect of normal and altered morphogenesis and differentiation. The skills that a student needs to know how to practically perform (knows how to do and does):</p> <ol style="list-style-type: none"> 1. to observe and analyze the cytological and histological slides 2. to observe peripheral blood smear using oil immersion 3. to analyze and interpret electron micrographs, 4. to independently draw cytological and histological preparations, 5. to label the structural units in the drawing of histological slide of adult and fetal organs 6. to correctly interpret morphological structures of adults organs and organs during development <p>Skills that a student needs to know (knows how):</p> <ol style="list-style-type: none"> 1. histotechnological methods of slide preparation <p>After the end of the course, the student should adopt the following attitudes:</p> <ol style="list-style-type: none"> 2. an adequate observation of cytological and histological slides is a pre-requisite for proper analysis 3. the proper analysis of the slide is a pre-requisite for the understanding of the structure 4. a good knowledge of the normal microscopic and submicroscopic structure of cells and tissues is a pre-requisite for the understanding of their functions 5. knowledge of the normal structure and the function of cells and tissues is a pre-requisite for better understanding of numerous disorders
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4. Learning methods	The course consists of: <ul style="list-style-type: none"> - lectures <i>ex cathedra</i> - practical work - interactive learning 																																					
5. Methods of knowledge evaluation	<table border="1" data-bbox="485 488 1410 965"> <thead> <tr> <th data-bbox="485 488 798 618">Criteria for assessment of each of the modules</th> <th data-bbox="798 488 1106 618">Maximum</th> <th data-bbox="1106 488 1410 618">Minimum</th> </tr> </thead> <tbody> <tr> <td data-bbox="485 618 798 714">Knowledge and skills in practicals</td> <td data-bbox="798 618 1106 714" style="text-align: center;">14</td> <td data-bbox="1106 618 1410 714" style="text-align: center;">7,0</td> </tr> <tr> <td data-bbox="485 714 798 844">Knowledge and activities in interactive learning</td> <td data-bbox="798 714 1106 844" style="text-align: center;">11</td> <td data-bbox="1106 714 1410 844" style="text-align: center;">5,5</td> </tr> <tr> <td data-bbox="485 844 798 904">Partial exam</td> <td data-bbox="798 844 1106 904" style="text-align: center;">25</td> <td data-bbox="1106 844 1410 904" style="text-align: center;">15</td> </tr> <tr> <td data-bbox="485 904 798 965">Total:</td> <td data-bbox="798 904 1106 965" style="text-align: center;">50</td> <td data-bbox="1106 904 1410 965" style="text-align: center;">27,5</td> </tr> </tbody> </table> <table border="1" data-bbox="485 999 1410 1294"> <thead> <tr> <th data-bbox="485 999 963 1117">The assessment of practical work (grade description)</th> <th data-bbox="963 999 1410 1117">Points per practicals</th> </tr> </thead> <tbody> <tr> <td data-bbox="485 1117 963 1178">Does not meet the minimum</td> <td data-bbox="963 1117 1410 1178" style="text-align: center;">0</td> </tr> <tr> <td data-bbox="485 1178 963 1238">Average</td> <td data-bbox="963 1178 1410 1238" style="text-align: center;">0,5</td> </tr> <tr> <td data-bbox="485 1238 963 1294">Good or exceptional</td> <td data-bbox="963 1238 1410 1294" style="text-align: center;">1,0</td> </tr> </tbody> </table> <table border="1" data-bbox="485 1328 1410 1720"> <thead> <tr> <th data-bbox="485 1328 952 1424">The assessment of partial exam (grade)</th> <th data-bbox="952 1328 1410 1424">Points</th> </tr> </thead> <tbody> <tr> <td data-bbox="485 1424 952 1485" style="text-align: center;">6</td> <td data-bbox="952 1424 1410 1485" style="text-align: center;">15</td> </tr> <tr> <td data-bbox="485 1485 952 1545" style="text-align: center;">7</td> <td data-bbox="952 1485 1410 1545" style="text-align: center;">16-18</td> </tr> <tr> <td data-bbox="485 1545 952 1606" style="text-align: center;">8</td> <td data-bbox="952 1545 1410 1606" style="text-align: center;">19-21</td> </tr> <tr> <td data-bbox="485 1606 952 1666" style="text-align: center;">9</td> <td data-bbox="952 1606 1410 1666" style="text-align: center;">22-23</td> </tr> <tr> <td data-bbox="485 1666 952 1720" style="text-align: center;">10</td> <td data-bbox="952 1666 1410 1720" style="text-align: center;">24-25</td> </tr> </tbody> </table> <p data-bbox="485 1753 555 1783">Note:</p> <ul style="list-style-type: none"> • Knowledge and skills in practicals are evaluated continuously. • Each module contains 14 practical works (14 evaluations). • Interactive learning is done once per each module as an unannounced testing of the student's individual preparation for the theoretical part of the course. • Partial exam is organized in a form of a written essay (theoretical part) in addition to recognizing two histological slides and one electron 			Criteria for assessment of each of the modules	Maximum	Minimum	Knowledge and skills in practicals	14	7,0	Knowledge and activities in interactive learning	11	5,5	Partial exam	25	15	Total:	50	27,5	The assessment of practical work (grade description)	Points per practicals	Does not meet the minimum	0	Average	0,5	Good or exceptional	1,0	The assessment of partial exam (grade)	Points	6	15	7	16-18	8	19-21	9	22-23	10	24-25
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	<p>micrograph (practical part). Practical part of the first partial exam (module 1) includes additional recognition of three blood cells (presented in peripheral blood smear slides).</p> <ul style="list-style-type: none"> • To complete the partial exam, the student must score at least a minimum in both parts (theory + practical work) even though the partial exam is graded as a whole according to the points provided in the table. • The above mentioned criteria are identical for both modules. <p>The final grade is determined based on the following criteria:</p> <table border="1" data-bbox="478 734 1412 1285"> <thead> <tr> <th data-bbox="478 734 630 846">Grade</th> <th data-bbox="630 734 801 846">Cumulative points</th> <th data-bbox="801 734 1412 846">Grade description</th> </tr> </thead> <tbody> <tr> <td data-bbox="478 846 630 943">10 (A)</td> <td data-bbox="630 846 801 943">95-100</td> <td data-bbox="801 846 1412 943">Remarkable success without mistakes or with minor errors</td> </tr> <tr> <td data-bbox="478 943 630 1010">9 (B)</td> <td data-bbox="630 943 801 1010">85-94</td> <td data-bbox="801 943 1412 1010">Above average, with some mistakes</td> </tr> <tr> <td data-bbox="478 1010 630 1077">8 (C)</td> <td data-bbox="630 1010 801 1077">75-84</td> <td data-bbox="801 1010 1412 1077">Average, with noticeable errors</td> </tr> <tr> <td data-bbox="478 1077 630 1144">7 (D)</td> <td data-bbox="630 1077 801 1144">65-74</td> <td data-bbox="801 1077 1412 1144">Generally good but with significant shortcomings</td> </tr> <tr> <td data-bbox="478 1144 630 1211">6 (E)</td> <td data-bbox="630 1144 801 1211">55-64</td> <td data-bbox="801 1144 1412 1211">Meets the minimum criteria</td> </tr> <tr> <td data-bbox="478 1211 630 1285">5 (F, FX)</td> <td data-bbox="630 1211 801 1285">< 55</td> <td data-bbox="801 1211 1412 1285">Does not meet the minimum criteria</td> </tr> </tbody> </table>	Grade	Cumulative points	Grade description	10 (A)	95-100	Remarkable success without mistakes or with minor errors	9 (B)	85-94	Above average, with some mistakes	8 (C)	75-84	Average, with noticeable errors	7 (D)	65-74	Generally good but with significant shortcomings	6 (E)	55-64	Meets the minimum criteria	5 (F, FX)	< 55	Does not meet the minimum criteria
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6. Literature	<p>Recommended</p> <ol style="list-style-type: none"> 1. Alicelebic S. et al. Histology 1 – A practical guide for students. Sarajevo: Faculty of Medicine; 2017. 2. A practical guide for students (organs and embryology) – text in preparation. 3. Mescher AL. Junqueira's Basic Histology (text & atlas), 13th edition, McGraw-Hill; 2013. 4. Sadler TW. Langman's Medical Embryology. 11th edition, Lippincott Williams & Wilkins; 2011. <p>Additional</p> <ol style="list-style-type: none"> 1. Cooper MG, Hausman ER. The Cell: A Molecular Approach, 6th edition, Sinauer Associates; 2013. 2. Alberts B, Johnson A, Lewis J, et al. Molecular Biology of the Cell, 6th edition, Garland Science; 2014. 																					
7. Exam questions	Exam questions correspond to the theoretical and practical topics in the course's weekly teaching plans in semester I and II.																					

WEEKLY TEACHING PLAN

I SEMESTER

Week	Course form and content	Number of classes
Week 1	<p>Lecture: INTRODUCTION</p> <p>History, staff and organization of the Department. Introduction to the subject. Hierarchical model of the morpho-functional organization of the human body. Basic principles of histological techniques and methods.</p> <p>Practical work: Histotechnology laboratory</p> <ol style="list-style-type: none"> 1. laboratory equipment and demonstration of the phases in the histotechnology process 2. microscopy technique and analysis of the artifact 	2
Week 2	<p>Lecture: CELL MEMBRANE</p> <p>Indirect and direct evidence of the existence of the cell membrane and its appearance on an electronic microscope. Molecular organization of the cell membrane and its chemical composition. Cell membrane matrix and its functions. Integral and peripheral proteins.</p> <p>Practical work: Cell shape</p> <ol style="list-style-type: none"> 1. spherical cell shape (light microscopy = LM) 2. pyramidal cell shape (LM) 	2
Week 3	<p>Lecture: CELL MEMBRANE</p> <p>Functional characteristics of the cell membrane – aqueous and ion channels. Ionophores. Protein carriers: uniport, symport and antiport. Carbohydrates of biological membranes and their functional role. Exocytosis: constitutive and regulated. Endocytosis. Pinocytosis: fluid-phase and receptor-mediated phase. Clathrin-coated and non-clathrin-coated vesicles. Phagocytosis. Transcellular transport of small molecules and transcytosis.</p> <p>Practical work: Cell membrane</p> <ol style="list-style-type: none"> 1. cell membrane (TEM = transmission electron microscopy) 2. microvilli (TEM) 	2
Week 4	<p>Lecture: ENDOSOMES, LYSOSOMES AND PEROXISOMES</p> <p>Endosomes: visualization, types, structure and function. The role of endosome in the distribution of material internalized by the pinocytotic</p>	2

	<p>process. Lysosomes: membrane, pH and matrix enzymes. Method of identification. Typization, lysosomal function and disorders: inclusion of cell disease. Peroxisomes.</p> <p>Practical work: Membrane bounded organelles</p> <ol style="list-style-type: none"> 1. lysosome (TEM) 2. endosome (TEM) 3. peroxisome (TEM) 	2
Week 5	<p>Lecture: ENDOPLAZMATIC RETICULUM (ER) AND RIBOSOMES</p> <p>Rough and smooth ER (LM, TEM and other techniques that allow differentiation). Ribosomes and protein synthesis. Other rough ER functions: protein glycosylation, oligosaccharide synthesis, modeling and remodeling of peptide molecules and synthesis of phospholipids. Functions of the smooth ER.</p> <p>Practical work: Membrane bounded organelles</p> <ol style="list-style-type: none"> 1. rough and smooth endoplasmic reticulum (TEM) 2. rough endoplasmic reticulum (LM – indirectly) 3. smooth endoplasmic reticulum (LM – indirectly) 	2
Week 6	<p>Lecture: GOLGI APPARATUS AND MITOCHONDRIA</p> <p>Golgi apparatus: Photomicroscopic features. Ultrastructure, cis, media and trans zone. Functional role of each zone. Secretory vesicles. Mitochondria: microscopic differentiation. Ultrastructure, structure and function of Mitochondrial reproduction. The origin of mitochondria (theory). Mitochondrial diseases.</p> <p>Practical work: Membrane bounded organelles</p> <ol style="list-style-type: none"> 1. Golgi apparatus (TEM) 2. glandular cell (thyroid gland – LM and TEM) 3. mitochondria (TEM) 	2
Week 7	<p>Lecture: CYTOSOL AND ITS COMPONENTS</p> <p>General characteristics and composition of cytosol. Cytoskeleton. Actin filaments: structure, distribution, function with emphasis on the cellular cortex and microvilli. Microtubules. Centrosome. Centriole and cilia: ultrastructure and function. Intermediate filaments: types and clinical significance. Cell inclusions: glycogen, lipid droplets and pigments.</p> <p>Practical work: Cytosol, cell inclusions and cytoskeleton</p> <ol style="list-style-type: none"> 1. lipid droplets (LM) 2. pigment in the cytosol (LM) 3. actin filaments (TEM) 4. microtubules (TEM) 5. cilia (TEM) 	2

	<p>Practical work: Muscle tissue</p> <ol style="list-style-type: none"> smooth muscle tissue (LM) skeletal muscle tissue (LM, TEM) cardiac muscle tissue (LM, TEM) conduction cardiomyocytes (LM) endocrine cardiomyocytes (TEM) 	2
Week 14	<p>Lecture: NERVOUS TISSUE</p> <p>Neuron: classification and distribution. Perikaryon – shape, size, composition. Dendrites and axons – appearance, composition and function. Ultrastructural, histochemical properties and the histophysiology of neurons. Nerve fiber structure. Synapses.</p> <p>Glial cells: morphology and distribution. Morphology, ultrastructure and function. Mechanism and significance of the nerve fiber degeneration and regeneration.</p> <p>Neuroglandular cells.</p> <p>Practical work: Nervous tissue</p> <ol style="list-style-type: none"> multipolar neuron (LM) pseudounipolar neuron and satellite cells (LM) astrocytes (TEM) oligodendroglia (TEM) microglia (TEM) nerve fibers (LM, TEM) 	2
Week 15	FIRST PARTIAL (MIDTERM) EXAM – M1	1 + 1

II SEMESTER

Week	Course form and content	Number of classes
Week 1	<p>Lecture: MALE REPRODUCTIVE ORGANS</p> <p>Testes: tunics and parenchyma. Seminiferous epithelium epithelium: spermatogenic and Sertoli cells; cell compartments, spermatogenic cycle, its stages regulation. Morphology and ultrastructure of spermatozoa. Interstitial connective tissue – vascular components and Leydig cells - the ultrastructure and function. Histological structure of intratesticular and excretory genital ducts. Histophysiology of the penis. Accessory glands.</p> <p>Practical work:</p> <ol style="list-style-type: none"> testis (LM) 	2

	<ol style="list-style-type: none"> 2. epididymis (LM) 3. penis (LM) – sample 4. prostate gland (LM) 	2
Week 2	<p>Lecture: FEMALE REPRODUCTIVE ORGANS</p> <p>Ovary. Histological organization and age – dependent changes. Developmental and regressive forms of ovarian follicles and corpus luteum. The structure and function of the Fallopian tubes, uterus, vagina and external genitalia. Ovarian and menstrual cycle.</p> <p>Practical work:</p> <ol style="list-style-type: none"> 1. ovary (LM) 2. uterus (LM) 3. vagina (LM) – sample 	2
Week 3	<p>Lecture: GENERAL EMBRYOLOGY</p> <p>Fertilization. Duration of pregnancy; developmental stages and determination of gestational, embryonic and fetal age. Cleavage, blastocyst, implantation. Formation and differentiation of germ layers. Fetal and decidual membranes. Placenta: development, structure and function. Twins. Developmental anomalies – causes, classification and types.</p> <p>Practical work:</p> <ol style="list-style-type: none"> 1. placenta (LM, TEM) 2. umbilical cord (LM) 	2
Week 4	<p>Lecture: HISTOLOGY OF THE DIGESTIVE SYSTEM</p> <p>Oral cavity: lips, cheeks, soft and hard palate, tongue, teeth, periodontium, gingiva. Gustatory corpuscles. Pharynx. Esophagus. Stratification, histological structure, ultrastructure, innervation, vascularization and histophysiology of the digestive tube (stomach – anal canal).</p> <p>Practical work:</p> <ol style="list-style-type: none"> 1. lip (LM) – sample 2. tooth (LM) 3. tooth development (LM) 4. tongue (LM) 5. esophagus (LM) 	3
		2

Week 5	<p>Lecture: HISTOLOGY OF THE DIGESTIVE SYSTEM</p> <p>Salivary glands – parotid, submandibular and sublingual. Exocrine and endocrine pancreas – structure and ultrastructure: acinus, excretory ducts and Langerhans islets. Liver: lobule, portobiliary space, hepatocytes, Kupffer cells, Ito cells. Functional and nutritive blood supply. Intrahepatic and extrahepatic bile ducts, gallbladder.</p> <p>Practical work:</p> <ol style="list-style-type: none"> 1. fundus of stomach (LM) 2. stomach epithelium (TEM) 3. duodenum (LM) 4. small intestine (TEM) 5. large intestine (LM) 	<p>2</p> <p>2</p>
Week 6	<p>Lecture: DEVELOPMENT OF THE DIGESTIVE SYSTEM</p> <p>Development of the oral cavity and its organs. Development and differentiation of the digestive tube. Development of the accessory digestive glands and spleen.</p> <p>Practical work:</p> <ol style="list-style-type: none"> 1. parotid gland (LM) 2. mixed salivary gland (LM) 3. liver (LM, TEM, SEM) 4. pancreas (LM) 	<p>2</p> <p>2</p>
Week 7	<p>Lecture: CARDIOVASCULAR SYSTEM – HISTOLOGY AND DEVELOPMENT</p> <p>Capillaries: continuous, fenestrated and sinusoidal capillaries. Elastic and muscular artery: structure and function. Veins. Endothelial cell heterogeneity. Heart: endocardium, myocardium, epicardium. Histological characteristics of the cardiac conductive system. Endocrine cardiomyocytes. Structure of lymph vessels. Embryonic and fetal circulation.</p> <p>Practical work:</p> <ol style="list-style-type: none"> 1. elastic artery (LM) 2. muscular artery (LM) 3. vein (LM) 4. capillaries (TEM) 	<p>3</p> <p>2</p>
Week 8	<p>Lecture: RESPIRATORY SYSTEM – HISTOLOGY AND DEVELOPMENT</p> <p>Nasal cavity, paranasal sinuses, olfactory mucosa. Larynx, trachea, primary bronchi. Bronchial tree: branching and histological structure. Pulmonary lobule. Pulmonary alveoli. Vascularization and lung</p>	<p>2</p>

	<p>innervation with an emphasis on the blood – air barrier. Pleura. Development of the respiratory system.</p> <p>Practical work:</p> <ol style="list-style-type: none"> 1. olfactory mucosa (LM) 2. trachea (LM) 3. epiglottis (LM) 4. lung (LM, TEM, SEM) 	2
Week 9	<p>Lecture: URINARY SYSTEM – HISTOLOGY AND DEVELOPMENT</p> <p>Kidney: cortex and medulla. Nephron: morphology and topography. Renal corpuscle. Ultrastructure of the filtration membrane. Collecting ducts and papillary ducts. Juxtaglomerular apparatus. Renal interstitium. Vascularization and renal innervation. Histology of the urinary tract. Development of the urinary system.</p> <p>Practical work:</p> <ol style="list-style-type: none"> 1. kidney (LM) 2. filtration membrane (TEM) 3. ureter (LM) 4. bladder (LM) 	2
Week 10	<p>Lecture: HISTOLOGY OF THE IMMUNE SYSTEM</p> <p>Cells and tissues of the immune system. Organization of the lymphatic organs. Histology of the thymus, lymph nodes and spleen. Mucosa-associated lymphatic tissue.</p> <p>Practical work:</p> <ol style="list-style-type: none"> 1. palatine tonsil (LM) 2. lymph node (LM) 3. spleen (LM) 4. thymus (LM) 	2
Week 11	<p>Lecture: ENDOCRINE SYSTEM</p> <p>Structural typization of endocrine tissue. Pituitary gland. Epiphysis. Thyroid gland. Parathyroid gland. Adrenal gland. Hormones, control mechanisms of secretory activity with a brief presentation of the clinical presentation of hyper and hypofunctional states. Diffuse neuroendocrine system: distribution, types and morpho-functional properties.</p> <p>Practical work:</p> <ol style="list-style-type: none"> 1. pituitary gland (LM) 2. thyroid gland (LM, TEM) 3. parathyroid gland (LM) 4. adrenal gland (LM) 5. enteroendocrine cell (TEM) 	2

		2
Week 12	<p>Lecture: DEVELOPMENT OF ENDOCRINE GLANDS AND REPRODUCTIVE SYSTEM</p> <p>Development of the pituitary gland, epiphysis, thyroid gland, parathyroid glands, ultimobranchial body, adrenal gland, thymus. Indifferent stage and differentiation during the development of gonads, genital ducts and external genitalia.</p> <p>Practical work:</p> <ol style="list-style-type: none"> 1. endocrine glands development (scheme, LM) 2. fetal gonads (LM) 	2
Week 13	<p>LECTURE: NERVOUS SYSTEM – HISTOLOGY AND DEVELOPMENT</p> <p>Cerebrum: gray and white matter composition with an emphasis on regional differences. Cerebellum: gray and white matter. Spinal medulla: gray and white matter, regional histological differences. The structure of ganglia, nerves and sensory receptors. Meninges, choroid plexus. Morphogenesis and histogenesis of the neural tube. Neural crest differentiation.</p> <p>Practical work:</p> <ol style="list-style-type: none"> 1. cerebrum (LM) 2. cerebellum (LM) 3. spinal cord (LM) 4. spinal nerve (LM) 5. lamellated (Pacinian) corpuscle (LM) – sample 6. neural tube development (LM) - sample 	2
Week 14	<p>Lecture: SKIN AND SENSE ORGANS HISTOLOGY AND EMBRYOLOGY</p> <p>Histology of the skin and derivatives. Histology of the eye and ear. Skin, eye and ear development.</p> <p>Practical work:</p> <ol style="list-style-type: none"> 1. skin and derivatives (LM) 2. retina (LM) 3. lacrimal gland (LM) – sample 4. eye development (LM) – sample 5. organ of Corti (LM) – sample 	2
Week 15	SECOND PARTIAL (MIDTERM) EXAM – M2	1 + 1

Week 17 – 18.	FINAL EXAMINATION TERM	
Week 19 – 20.	RE-SIT EXAMINATION TERM	

Code: SFSOM0103E		COURSE TITLE: MEDICAL BIOCHEMISTRY	
Level: undergraduate	Year: I	Semester: I	ECTS credits: 9
Course status: compulsory		Total classes: 90	
Teaching staff:			
Entry requirements: No entry requirements			
1. Course objectives	<p>The goal is to enable the student for:</p> <ul style="list-style-type: none"> • Acquiring a good basis for monitoring course contents in further medical and dental subjects • Introduction of biomolecular constituents of cells, their role and participation in metabolic processes • Understanding of biochemical processes occurring in individual tissues and organs and the influence of hormones on these processes • Understanding the mechanisms of the occurrence of the disease after disturbance of these processes. • Getting acquainted with the basic analytical procedures for determining the constituents of the body fluids of a healthy person, as well as those that indicate disorders. 		
2. Course purpose	<p>Introduction to the basic metabolic processes, their importance for individual organs and tissues, the importance of co-operation among particular tissues, their metabolic capacities, for the purpose of understanding complex physiological and pathophysiological processes in the organism.</p>		
3. Learning outcomes	<p>Medical biochemistry is divided according to basic aspects, roles of body constituents, metabolism of nutrients and their importance for organic systems and tissues, in following modules:</p> <p>1. Biochemistry of saliva The objectives of the module are:</p> <p>Introduction to the content and exchange of water and mineral salts in the body; basics of acid-base regulation; exchange and importance of water and inorganic and organic components of saliva and variation in composition; pH value of saliva-factors affecting its change and regulation;</p>		

	<p>2. Enzymes; creation and storage of metabolic energy The objectives of the module are: Introduction to the properties and classification of enzymes; mechanisms for creating and storing metabolic energy</p> <p>3. Metabolism of carbohydrates The objectives of the module are: getting to know the roles and properties of carbohydrates, their digestion, metabolic processes and energy balance</p> <p>4. Metabolism of lipids The objectives of the module are: getting to know the properties and roles of fatty substances; exchange, creation and storage, catabolism, and energy balance</p> <p>5. The metabolism of proteins and amino acids The objectives of the module are: getting acquainted with the characteristics of amino acids, peptides and proteins; the basic metabolic processes of amino acids, proteins, non-protein nitrogen derivatives, their destiny within the metabolism and storage and energy values, with an emphasis on the importance of NPN compounds</p> <p>6. Regulatory mechanisms and mutual relations of intermediate metabolism The objectives of the module are: introduction to the basics of regulation mechanisms of metabolism of nutrients in the human organism, and biochemical aspects of the action of hormones</p> <p>7. Medical-biochemical specificities of the tissue and organs of the oral environment The objectives of the module are: getting acquainted with the biochemical characteristics of hard and soft tissue; getting acquainted with the biochemical processes that are taking place in the development of dental biofilm</p>
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	<p>Skills that a student needs to know, and to practically perform:</p> <ul style="list-style-type: none"> • basic methods of proving constituents of bodily fluids (serum, saliva, urine), • basics of photometry and construction of calibration diagram <p>Skills that a student needs to know:</p> <ul style="list-style-type: none"> • basics of work in the medical-biochemical laboratory, • work with human material • measures of precaution in the laboratory, <p>Skills that a student needs to have information about:</p> <ul style="list-style-type: none"> • diagnostic methods of secondary and tertiary level in a biochemical laboratory (electrophoresis, clinical-biochemical examination of urine) <p>After attending course classes, the student should adopt the following attitudes:</p> <ul style="list-style-type: none"> • adopt the basic aspects of medical biochemistry • adopt the basic principles of the importance of metabolic processes and theirs disorders • the necessity of applying the basic methods most commonly used in biochemical laboratory
<p>4. Learning methods</p>	<p>Course content will be carried out in the form of lectures and practicals as follows:</p> <ul style="list-style-type: none"> - lectures for all students – 60 classes - practicals for no more than 10 students in the group – 30 classes
<p>5. Methods of student knowledge assessment</p>	<p>Continuous knowledge assessment will be carried out through: practicals and exams from theoretical parts of the course content. Each form of knowledge assessment has defined minimal points needed to pass the exam.</p> <p>Practicals:</p> <p>This part will be conducted according to the principle of interactive learning. In the term of each laboratory exercise of this course knowledge of the students will be checked, with the possibility that if the student regularly verify his/her practical activities he/her will be released from the obligations of taking the practical part of the exam. Continuous evaluation of the practicals is done in five colloquiums, where each colloquium is scored by maximally 10</p>

points. A colloquium is considered to be passed if the candidate has scored at least 6 points.

Unpassed colloquiums involve taking the practical part of the exam from these areas at the final exam, choosing one examination question from each of these areas. Evaluation of the practical part is done by evaluating each exercise individually, how student knows:

1. to describe the test substance or given term - 1,5 points
2. the significance of the test substance / given term for the human organism - 1,5 points
3. necessary equipment, necessary accessories, necessary reagents - 1,5 points
4. the analytical procedure - 1,5 points
5. to do it practically - 2 points
6. to interpret the results and reference values - 2 points

Theoretical part:

Partial exam I is taken in the week 8 after the first four modules. Partial Exam II is taken in the week 15 at the end of semester, after modules 5, 6 and 7 are over.

In the term of final exam, which is taken after a completing this course, the student takes the exam from the parts of the course content which he did not pass within the framework of continuous knowledge assessment during the semester. The prerequisite for accessing the final exam is obtained signature for regular attendance. The requirement for taking the theoretical part of the exam at the final examination is previously passed the complete practical part.

Points that could be obtained in the partial exams:

Partial exams	minimum points	maximum points
I (test 1)	14	26
II (test 2)	11	24

Test 1 and 2 are composed of 50 questions each. Student passes the exam if correctly answers at least 27 questions (54% of correct answers, each correct answer receives 2%).

If the student did not pass test 1 and/or test 2, it could be retaken in the final exam, in written form as well.

Final grade is based upon further elements:

	<table border="1" data-bbox="451 454 1362 835"> <thead> <tr> <th data-bbox="451 454 898 510" rowspan="2">Total score</th> <th colspan="2" data-bbox="898 454 1362 510">points</th> </tr> <tr> <th data-bbox="898 510 1126 573">minimum</th> <th data-bbox="1126 510 1362 573">maximum</th> </tr> </thead> <tbody> <tr> <td data-bbox="451 573 898 651">practical part</td> <td data-bbox="898 573 1126 651">30</td> <td data-bbox="1126 573 1362 651">50</td> </tr> <tr> <td data-bbox="451 651 898 712">theoretical part-test 1</td> <td data-bbox="898 651 1126 712">14</td> <td data-bbox="1126 651 1362 712">26</td> </tr> <tr> <td data-bbox="451 712 898 772">theoretical part-test 2</td> <td data-bbox="898 712 1126 772">11</td> <td data-bbox="1126 712 1362 772">24</td> </tr> <tr> <td data-bbox="451 772 898 835">total</td> <td data-bbox="898 772 1126 835">55</td> <td data-bbox="1126 772 1362 835">100</td> </tr> </tbody> </table> <p data-bbox="451 898 1399 965">Final grade represents summary grade from all forms of continuous knowledge assessment, including:</p> <ul data-bbox="499 992 962 1059" style="list-style-type: none"> • results obtained in practical parts • results obtained in theoretical parts <p data-bbox="451 1066 1342 1171">In order to obtain final grade required to pass the exam, student has to have minimal points from both segments (i.e. has to pass both practical and theoretical part).</p> <p data-bbox="451 1196 842 1229">Final grade is formed as follows:</p> <p data-bbox="451 1252 727 1285">10 (A) - 95-100 points,</p> <p data-bbox="451 1308 695 1341">9 (B) - 85-94 points,</p> <p data-bbox="451 1364 695 1397">8 (C) - 75-84 points,</p> <p data-bbox="451 1420 711 1453">7 (D) - 65 - 74 points,</p> <p data-bbox="451 1476 695 1509">6 (E) - 55-64 points,</p> <p data-bbox="451 1532 783 1565">5 (F, FX) - below 55 points.</p> <p data-bbox="451 1655 1342 1800">Note: If student is not satisfied with grade received during continuous knowledge assessment or in final/retake exam term, he/she can appeal the grade and has to retake all parts (practical and theoretical part), in the same way (written tests).</p>		Total score	points		minimum	maximum	practical part	30	50	theoretical part-test 1	14	26	theoretical part-test 2	11	24	total	55	100
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6. Literature	<p data-bbox="491 1888 624 1921">Required:</p> <ol data-bbox="459 1944 1374 2011" style="list-style-type: none"> 1. Jadrić R, Hasić S, Kiseljaković E, Kulo A. Experimental Procedures and Clinical Correlations in Medical Biochemistry 1. Perfecta Sarajevo; 2018 																		

	<p>2. Hasić S, Kiseljaković E, Jadrić R, Kulo A, Alić L. Experimental Procedures and Clinical Correlations in Medical Biochemistry 2. Perfecta Sarajevo; 2019-in press</p> <p>3. Vasudevan DM, Sreekumari S, Kannan Vaidyanathan. Textbook of Biochemistry for Dental Students: 2nd Edition. Jaypee Brothers Medical Publishers (P) Ltd.; 2011</p> <p>Recommended:</p> <p>1. Smith C, Marks AD, Lieberman M. Marks' Basic Medical Biochemistry-A Clinical Approach. 4th ed. Lippincott Williams&Wilkins; 2013</p>
7. Exam questions	Exam questions are corresponding to the theoretical and practical topics in the course weekly teaching plan in I semester.

WEEKLY TEACHING PLAN

I SEMESTER

Week	Course form and content	Number of classes
Week 1	Lecture: Water - quantity, distribution and role in the organism. Metabolism of water and its regulation.	2
	Lecture: Minerals -distribution and roles in the organism; cations and anions - importance, distribution and roles in the organism; trace elements;	2

Week 2	Lecture: Significance of pH in the body. Changes in pH (acidosis and alkalosis). Buffers and organic systems in pH regulation.	2
	Lecture: Saliva composition; main salivary organic compounds: protein with lubricating properties, digestive proteins (enzymes), protein with antimicrobial properties; other organic components: blood group substances, carbohydrates, lipids, amino acids, urea, sialine; normal variation in saliva composition.	2
	Practical laboratory work 1: Osmosis; Diffusion; Biological methods of measuring the osmotic pressure; Preparation of physiological solutions;	3
Week 3	Lecture: Enzymes - The concept of biocatalysis and enzymatic reaction. Structure of the enzyme - active and allosteric centers, coenzymes. Conditions and mechanism of action of the enzyme. Specificity of the enzyme. Inhibitors and activators of enzymatic reactions. Classification of enzymes; Isoenzymes.	2
	Lecture: Oxidative phosphorylation, generation and storage of metabolic energy;	2
	Practical laboratory work 2: Basics of photometry; Detection and determination of chloride (photometry); Qualitative analysis of organic sulphate in urine– urinary indican (Obermeyer reaction); Determination of the capacity of organic and inorganic blood plasma buffers;	3
Week 4	Lecture: Carbohydrates – structure and biomedical importance;	2
	Lecture: Carbohydrate -digestion, absorption and transport;	2

	Practical laboratory work 3: Color reactions of proteins and amino acids; Principle of blood detection-the Kastle – Meyer’s test;	3
Week 5	Lecture: Glycolysis – pyruvate transformations under anaerobic and aerobic conditions, energy generation; oxidative decarboxylation of pyruvate; glycogenolysis;	2
	Lecture: Gluconeogenesis, citric acid cycle, pentose phosphate cycle;	2
	Practical laboratory work 4: Reversible and irreversible protein precipitation; Detection and determination of urinary protein; Determination of total protein by biuret method (photometry);	3
Week 6	Lecture: Lipids – structure and function;	2
	Lecture: Lipids-digestion, absorption and transport;	2
	Practical laboratory work 5: Detection and determination of glucose concentration; photometry (GOD-PAP method);	3
Week 7	Lecture: Oxidation of fatty acids: alpha, beta and omega oxidations; unsaturated and odd number fatty acid oxidation;	2
	Lecture: Lipids anabolism - fatty acids and triglycerides synthesis; cholesterol and bile acids synthesis; Synthesis and utilisation of ketone bodies;	2
	Practical laboratory work 6: Qualitative analysis of cholesterol; Determination of cholesterol by photometry; Qualitative analysis of bile acids; Determination of triglyceride in serum;	3

Week 8	Lecture: Classification of amino acids and their biological significance; Peptides-biological importance; Nitrogen metabolism – protein digestion and absorption of amino acids;	2
	Partial exam I	2
Week 9	Lecture: Metabolism of amino acids; fate of amino acid nitrogen-urea cycle;	2
	Lecture: Catabolism of amino acids - glycolytic and ketogenic amino acids;	2
Week 10	Lecture: Synthesis of amino acids. Special compounds derived from metabolism of amino acids;	2
	Lecture: Chromoproteins - hemoglobin, myoglobin, cytochromes;	2
	Practical laboratory work 7: Quantitative reaction on alpha amylase- Wohlgemuth method; Ptyalin activity and termolabilty in saliva;	3
Week 11	Lecture: Chromoprotein metabolism-hem synthesis and breakdown; bile pigment metabolism (icterus)	2
	Lecture: Nucleic acids-structure and function; protein synthesis; regulation of gene expression;	2
	Practical laboratory work 8: Pepsin activity; Fermentative hydrolysis of urea; Reactions on water- and fat-soluble vitamins;	3
Week 12	Lecture: Nucleoprotein metabolism; purines and pyrimidines; uric acid synthesis;	2
	Lecture: Regulation of carbohydrates, lipids and proteins metabolism;	2

	Practical laboratory work 9: Qualitative reaction on lactic acid; Qualitative reaction on ketone bodies in urine; Determination of urea and creatinine in serum (photometry);	3
Week 13	Lecture: Biochemistry of hormones;	2
	Lecture: Dental plaque biochemistry: plaque fluid; Metabolism of dental plaque: the formation of acid and alkaline products; Changes in the pH of the plaque following food consumption; synthesis of polysaccharides in dental plaque; other significant metabolic processes in dental plaque.	2
	Practical laboratory work 10: Qualitative reaction on bile pigments; Determination of bile pigments in serum (photometry); Electrophoresis of plasma proteins and salivary alpha amylase; Urine analysis;	3
Week 14	Lecture: Extracellular matrix (collagen, elastin) - characteristics; the importance of vitamin C; collagen synthesis disorders – scurvy;	2
	Lecture: Biochemistry of bones; vitamin D metabolism; bone tissue disorders - rickets and osteomalacia;	2
Week 15	Lecture: Biochemical characteristics of oral soft and hard tissues. Biochemical characteristics of decay.	2
	Partial exam II	2
Week 17-18	Final exam	
Week 19-20	Final exam/retake	

Code: SFSOM0104E		COURSE TITLE: HUMAN GENETICS AND CELL BIOLOGY	
Level: undergraduate	Year: I	Semester: I	ECTS credits: 4
Course status: compulsory		Total classes: 60	
Professor in charge:			
Entry requirements: No entry requirements			
1. Course objectives	Through this course the students are introduced with the basics of modern biological science, which achievements today are essential for understanding, diagnostics and dental patient therapy. Students Meet the basics of cell biology, molecular and developmental biology, human genetics with special emphasis on important molecular mechanisms that are necessary in the knowledge and work of the doctor of dental medicine.		
2. Course purpose	The purpose of the subject is to analyze the complex events in the cell and organism (from birth to death), and the role of genetics in all happenings in the human oral cavity.		
3. Learning outcomes	<p>Students will acquire the following knowledge:</p> <p>Biology of the cell</p> <p>Types of cellular organization, structure, molecular organization and function of genetic material.</p> <p>Molecular genetics of the human genome.</p> <p>Molecular-genetic mechanisms of reproduction.</p> <p>The basics and principles of the pathway of genetic information.</p> <p>Transcription, translation, genetic regulation in these events.</p> <p>Cellular and molecular basics of inheritance.</p> <p>Legacies of inheritance, mechanisms of the emergence of monogenic and polygenic diseases, their diagnosis which is unavoidable in daily dental practice.</p> <p>Hereditary disorders of orofacial structures.</p> <p>Mutagenesis, carcinogenesis, teratogenesis.</p> <p>Gene therapy, genetic engineering and biotechnology.</p> <p>Genetic counseling, prognosis and disease outcome.</p>		

4. Learning methods	<p><u>The course is performed through:</u></p> <p><u>Lectures where actual topics are being presented, discussion and making practical work on the table. Also, problems/cases are being solved and logical conclusions are trying to achieve.</u></p>
5. Methods of student knowledge assessment	<p><u>Partial exam I</u></p> <p><u>On this exam the student can score a maximum of 50 points, and the exam is passed with minimally scoring of 28 points.</u></p> <p><u>Partial exam II</u></p> <p><u>On this exam student can also score a maximum of 50 points, and the exam is passed with minimally scoring of 28 points.</u></p> <p>Final exam</p> <p>If the student did not satisfy the partial exam(s), he/she has to retake it within the final exam</p> <p>Final grade is formed as follows: 10 (A) - 95-100 points, 9 (B) - 85-94 points, 8 (C) - 75-84 points, 7 (D) - 65 - 74 points, 6 (E) - 55-64 points, 5 (F, FX) - below 55 points.</p>
6. Recommended literature:	<ol style="list-style-type: none"> 1. Alberts B. et all. Essential Cell Biology, Second edition, USA: Garaland Sciences; 2004. 2. Lewine B, Genes VIII, USA: PEARSON; 2004. 3. Lewis Ricki, Human Genetics Concepts and applications. New York: Mc Graw Hill; 2005.
7. Exam questions	<p>Exam questions are corresponding to the theoretical topics in the course weekly teaching plan in I semester.</p>

WEEKLY TEACHING PLAN

I SEMESTER

Week	Course form and content	Number of classes
Week 1	<p>Lectures: Cell. Biology today, Molecular biology of cells. Evolution of prokaryotic and eukaryotic cells.</p> <p>Cell as an experimental model. The general plan of the cell structure, chemical cell structure.</p> <p>The role of enzymes as biological catalysts.</p> <p>Cell membrane: ultrastructure, universal organization (Singer-Nicolson model) and function. Cytoskeleton – microfilaments.</p> <p>Intermediate filaments, microtubules.</p> <p>Nucleus, transport to / from the nucleus, nuclear membrane, chromatin, nucleolus (structure and function).</p> <p>Endoplasmic reticle, Golgi apparatus, lysosomes, mitochondria, ribosomes.</p>	4
Week 2	<p>Lectures: Cellular and molecular basis of inheritance.</p> <p>DNA hereditary material. Types of DNA sequences. Genetic code.</p> <p>Chromosomes. Morphological, chemical and molecular structure. Chromosome analysis methods. Nomenclature of chromosomes.</p> <p>The human genome.</p> <p>Gene and genetic information: structure (introns, exons, promoter, terminator) and function.</p>	4
Week 3	<p>Lectures: Introduction to molecular biology: DNA replication (characteristics, enzymes, importance).</p> <p>Cell cycle: cell cycle of the eukaryotic cell, control points, regulation of the cell cycle.</p> <p>The nucleus in mitosis, the nucleolus, the mitosis stages.</p>	4
Week 4	<p>Lectures: Meiosis, gametogenesis: genetic significance of meiosis, gametogenesis (spermatogenesis and oogenesis).</p> <p>Genetic recombination:</p> <p>– homologous: synapses, chiasmata, crossing-over,</p>	4

	<p>– non-homologous (insertion sequences / transposons). Fertilization</p> <p>Determination and differentiation of half of human (role of sex chromosomes).</p>	
Week 5	<p>Lectures: Principles of medical genetics: Consequences of meiosis: the origin and causes of non-segregation of autosomes and sex chromosomes in meiosis I and meiosis II.</p> <p>Chromosomal aberrations: numerical and structural, with examples. Chromosomal diseases (general characteristics, causes, diagnostics, guidance in prevention).</p>	4
Week 6	<p>Lectures: History and influence of genetics on medicine:</p> <p>Karyotype and a human karyogram.</p> <p>The importance of genetically conditioned diseases in humans. Multifactor disorders.</p> <p>Syndromes and pathological conditions as a consequence of chromosomal aberrations (etiology, incidence, characteristics, consequences and risk of their expression / repetition).</p> <p>Clinical genetics</p>	4
Week 7	<u>Partial exam I</u>	4
Week 8	<p>Lectures: Biosynthesis of cellular constituents. Synthesis and finishing of RNA - transcription:</p> <p>Molecular basis and principles of genetic information flow. Transcription - synthesis of RNA (from DNA to RNA):</p> <ul style="list-style-type: none"> – enzyme RNA polymerase (structure, types, function) – the stages of the transcription process, – transcription of structural genes - (DNA → mRNA; code → codon; characteristics), – the iRNA structure of pro- and eukaryotes, – processing of the primary transcript – pre-mRNK, – RNA splicing. 	4
Week 9	Lectures: Synthesis and protein modeling:	4

	<p>Translating genetic information (from RNA to protein), genetic code.</p> <p>Activation of amino acids. Initiation, elongation and termination of translation.</p> <ul style="list-style-type: none"> - the mRNA, tRNA, rRNA function in the translation process, - characteristic enzymes and protein factors. <p>Regulation of protein synthesis in pro- and eukaryotes.</p>	
Week 10	<p>Lectures: Mutations: molecular biology in medicine and reparation system:</p> <p>Biological variability.</p> <ul style="list-style-type: none"> – types of gene mutations and consequences (examples), – mutagenic agents <p>Mechanisms for reparation: pre- and post-replicative.</p>	4
Week 11	<p>Lectures: Principles of medical genetics. Hereditary factors and their functioning.</p> <p>Gregor Mendel and the laws of inheritance. Mono-hybrid inheritance. Basic rules, principles and types of biological inheritance:</p> <ul style="list-style-type: none"> – the chromosome inheritance theory (genetic loci, alleles, genotype, phenotype, distribution and gene traits, expressiveness and penetrability of the gene), – allelic gene interaction - monogenic inheritance: (dominant, recessive, intermediate, pseudoautosomal, co-dominant - examples). – Epigenetics. 	4
Week 12	<p>Lectures: Models of inheritance:</p> <ul style="list-style-type: none"> – Interaction of non-allelic genes - polygenic inheritance (additive and complementary polygenia; epistasis). – Inheritance related to sex chromosomes (complete and incomplete sex related inheritance; sex-limited and sex-conditioned inheritance). – Mitochondrial inheritance. – Free combination of genes, genetic maps. 	4

Week 13	<p>Lectures: Cancer: developing genes and cancer. Positional effects and developing genes. Genetics of tumors: development and causes of origin.</p> <p>Proto-oncogenes, oncogenes, tumor suppressor genes. Tumors – cell cycle, apoptosis, role of telomeres in tumors. Molecular biology in the prevention and treatment of cancer.</p> <p>Gene therapy, potentials and application in human genetics.</p>	4
Week 14	<p>Lectures: DNA technology (genetic engineering) and its application: Principles of genetic engineering. Cloning forms.</p> <p>Banks of genes. Vectors. Ethic principles.</p> <p>Recombined DNA technology. Advantages and disadvantages of using recombinant DNA technology.</p>	4
Week 15	<u>Partial exam I I</u>	4
Week 17-18	Final exam	
Week 19-20	Final exam/retake	

Code: SFSOS0105E	Course title: DENTAL MORPHOLOGY WITH DENTAL ANTHROPOLOGY		
Level: undergraduate	Year: I	Semester: I	ECTS credits:6
Status: obligatory			Total classes: 45 (30+15)
Responsible teacher:	Head of Department		
Requirements for attending classes: Regularly enrolled in the corresponding semester			
1. Objectives	The aim of the course is to introduce students with all the anatomical, microanatomical (histological) and developmental (embryological) characteristics of permanent and deciduous human dentition. This way, student can connect the tooth shape with its functions and development of stomatognathic system.		
2. Purpose of Course	The course Dental Morphology with Dental Anthropology studies anatomical characteristics of deciduous and permanent human dentition. Except morphological details, the course also includes the physiological aspect of the tooth, and histological and embryological characteristics of oral tissues that are important for understanding future clinical courses. Through dental anthropology, this course study phylogenetic and ontogenetic development of teeth, and compares teeth of a contemporary man with teeth of other vertebrates.		
3. Outcomes	Upon completion of the course the student must: <ul style="list-style-type: none"> - Master nomenclature and terminology used in dental morphology and anthropology. - Have knowledge of the morphological details of all teeth of permanent and deciduous dentition, be able to recognize each tooth, and to understand functions of the stomatognathic system. - Fully overcome histological structure of tooth and its supportive tissues, and understand the mechanisms of development of developmental tooth anomalies. 		
4. Teaching methods	<ul style="list-style-type: none"> - interactive lectures - practical exercises - continuous assessment of knowledge 		
5. Assessment methods	The assessment contains the following elements: <ul style="list-style-type: none"> - Regular attendance at lectures is a minimum of 3 and maximum of 5 points. Regular attendance in exercises is a minimum of 3 and a maximum of 5 points. 		

	<ul style="list-style-type: none"> - The first partial exam (organized in the 8th week of semester) is in written form and contains a practical assignment, MCQ and essay questions, and carry a minimum score of 20 and a maximum score of 30 points. It is considered completed as having at least 60% of correctly answered questions. - The second partial exam (organized in the 15th week of semester) is in written form and contains a practical assignment, MCQ and essay questions, with a minimum of 29 points and a maximum of 60. It is considered completed as having at least 60% of correctly answered questions. - Final examination for students who did not meet partial exams or are not satisfied with the grade is organized in the 17th week of semester. <p>Upon completion of the semester, the student can win a maximum of 100 points. The total number of points scored is translated into the final score:</p> <p>10 (A) outstanding, without fail or with minor errors 95-100</p> <p>9 (B) above the average, with occasional errors 94-85</p> <p>8 (C) average, with noticeable errors 75-84</p> <p>7 (D) generally good, but with significant deficiencies 74-65</p> <p>6 (E) meets the minimum criteria 55-64</p> <p>5 (F, FX) does not meet the minimum criteria <55</p> <p>5 (FX) does not meet the minimum criteria <50</p>
<p>6. Literature:</p> <p>Obligatory:</p> <ol style="list-style-type: none"> 1. Berkowitz BKB, Holland GR, Moxham BJ. Oral Anatomy, Histology and Embriology. Mosby, St. Louis, 2002. 2. Woelfel J. Dental Anatomy. Baltimore, USA, 1997. 3. Vuković A. i sar. Osnovi morfologije zuba i dentalne antropologije. Stomatološki fakultet Univerziteta u Sarajevu, Sarajevo, 2013. 4. Avery JK, Chiego DJ. Osnovi oralne histologije i embriologije – klinički pristup. Datastatus, Beograd, 2011. <p>Additional:</p> <ol style="list-style-type: none"> 1. Martinović Ž. Osnovi dentalne morfologije Magenta ZI Beograd,1997. 2. Hraste J. Dentalna morfologija, Školska knjiga Zagreb, 1981. 	

Week 6.	<p>Lecture: General characteristics and individual descriptions of the first, second and third upper and lower permanent molars.</p> <p>Practical exercise: Recognition of permanent upper and lower first, second and third molars, and observation of morphological variations of permanent molars.</p>	2 1
Week 7.	<p>Lecture: Deciduous dentition: general characteristics and individual descriptions of the teeth of deciduous dentition.</p> <p>Practical exercise: Detection exercises on natural deciduous teeth. Exercises on plaster socle and educational models.</p>	2 1
Week 8.	<p>Lecture: Morphology of dental arches, contact points, tooth migrations, root canal system of permanent teeth and its significance for clinical practice.</p> <p>Practical exercise: Repetition of recognition of permanent teeth</p> <p>FIRST PARTIAL EXAM!</p>	2 1
Week 9.	<p>Lecture: An introduction to Dental Anthropology and Comparative odontography.</p> <p>Practical exercise: Endodontic space on the cross section of natural extracted teeth. Comparison of tooth morphology of different species.</p>	2 1
Week 10.	<p>Lecture: Histology of enamel/ectodermium of dental organ.</p> <p>Practical exercise: Observation and signature of histological preparations of enamel.</p>	2 1
Week 11.	<p>Lecture: Histology of endodontium of dental organ.</p> <p>Practical exercise: Observation and signature of histological preparations of endodontium.</p>	2 1
Week 12.	<p>Lecture: Histology of parodontium of dental organ.</p> <p>Practical exercise: Observation and signature of histological preparations of parodontium.</p>	2 1
Week 13.	<p>Lecture: Embryology of dental organ (morphological and physiological stages of tooth development).</p> <p>Practical exercise: Numerical tooth anomalies.</p>	2 1
Week 14.	<p>Lecture: Amelogenesis, dentinogenesis, pulpogenesis.</p> <p>Practical exercise: Morphological and structural anomalies of the teeth in the collection natural extracted teeth.</p>	2 1
Week 15.	<p>Lecture: Development of periodontium, tooth eruption, physiological tooth replacement.</p> <p>Practical exercise: Anomalies of tooth position, anomalies of root.</p>	2 1

Week 17.	Final exam	
Week 18.-20.	Exam- the second term	

FIRST YEAR ELECTIVE COURSES

Code: SFSIO0201E	COURSE TITLE: ENGLISH LANGUAGE IN DENTISTRY I		
Level of study: undergraduate	Year: I	Semester: II	ECTS credits: 6
Course status: elective			Total classes: 60
Professor in charge:			
Entry requirements: no entry requirements			
1. Course objectives:	Understanding of professional texts in the field of dentistry with the objective that students realize that language which they learn has also a different purpose, not just communicational. At this stage, the original texts from dentistry, summaries from the abstract books of congresses and conferences are used. Students are preparing for independent presentations as well as for self-writing of abstracts and scientific articles.		
2. Course purpose:	<p>Determination of the basic vocabulary, determination and repetition of grammatical structures, the adoption of pronouncements of English words coming directly from Latin or Greek language, defining the meaning of suffixes and prefixes, discussing professional themes, practicing writing abstracts and biography.</p> <p>Functional: developing the ability to conclude and think, developing the ability to express themselves independently, and the ability to apply acquired knowledge.</p> <p>Educational: achieving communication and interaction, achieving motivation for speaking in English language.</p>		

3. Learning outcomes:	<p>Students are trained to use four language skills - speaking, listening, reading and writing in those areas of dental science that are scheduled by the curriculum of the first academic year. Without major difficulties, they can:</p> <ul style="list-style-type: none"> - participate in oral communication with colleagues, students, dentists, lecturers; - make presentations related to the prescribed course content; - follow lectures in English language and actively participate in them; - read the professional literature with understanding, quickly finding the relevant information in the text; - participate in formal and informal written communication, and compile abstracts and reports
4. Learning methods:	Lectures, language practical exercises.
5. Methods for student knowledge	Continuous oral and written examinations, tests, discussions, oral presentations, portfolio of written papers, written final exam.
assessment	<p>Final grade is formed as follows:</p> <p>10 (A) - 95-100 points; 9 (B) - 85-94 points; 8 (C) - 75-84 points; 7 (D) - 65-74 points; 6 (E) - 55-64 points; 5 (F, FX) - under 55 points.</p>
6. Recommended literature	1. Štefić L. English in Dentistry I. Zagreb: Stomatološki fakultet Sveučilišta u Zagrebu; 1998.
7. Exam questions and weekly teaching plan	Exam questions and weekly teaching plan are corresponding to the course learning outcomes and knowledge assessment methods.

Code: SFSIS0106E	Course title: INTRODUCTION TO DENTISTRY WITH HISTORY OF DENTISTRY AND ETHICS		
Level: Undergraduate	Year: I	Semester: I	ECTS credits:7
Status: Optional			Total classes: 45 (30+15)
Responsible teacher:	Head of Department		
Requirements for attending classes: Regularly enrolled in the corresponding semester			
1. Objectives	<ul style="list-style-type: none"> - Introducing a student with the organization of studies at the Faculty of Dentistry - Introducing a student with the history of the dental profession - Introducing students with famous names in dentistry - Introducing students with the ethical principles of dental profession 		
2. Purpose of Course	The purpose of the course is to get acquainted with the organization of studies at Faculty of Dentistry, gaining an idea of the historical path of development of dental profession as a scientific discipline, and with ethical principles of dental profession and the consequences of possible non-compliance.		
3. Outcomes	<p>Upon completion of the course the students must:</p> <ul style="list-style-type: none"> - Have a realistic idea of the study itself and of their future profession. - Knowing the impact of the basic characteristics of certain historical periods in the development of the dental profession. - Knowing the path of development of medicine and dentistry in Bosnia and Herzegovina. - Understand the importance of the ethical components of their future profession. - Master the ethical principles important for their future profession. - Know and fully understand the importance of solving ethical dilemmas in everyday practice. - Respect the deontological principles. - Being able to apply ethical and deontological principles in everyday practice. 		
4. Teaching methods	<ul style="list-style-type: none"> - interactive lectures - practical exercises - seminar 		
5. Assessment methods	<p>The assessment contains the following elements:</p> <ul style="list-style-type: none"> - Regular attendance at lectures is a minimum of 3 and maximum of 5 points. Regular attendance in exercises is a minimum of 3 and a maximum of 5 points. 		

	<ul style="list-style-type: none"> - The first partial exam (organized in the 8th week of semester) is in written form and contains MCQ and essay questions, and carry a minimum score of 20 and a maximum score of 30 points. It is considered completed as having at least 60% of correctly answered questions. - The second partial exam (organized in the 15th week of semester) is in written form and contains MCQ and essay questions, with a minimum of 29 points and a maximum of 60. It is considered completed as having at least 60% of correctly answered questions. - Final examination for students who did not meet partial exams or are not satisfied with the grade is organized in the 17th week of semester. <p>Upon completion of the semester, the student can win a maximum of 100 points. The total number of points scored is translated into the final score:</p> <p>10 (A) outstanding, without fail or with minor errors 95-100 9 (B) above the average, with occasional errors 94-85 8 (C) average, with noticeable errors 75-84 7 (D) generally good, but with significant deficiencies 74-65 6 (E) meets the minimum criteria 55-64 5 (F, FX) does not meet the minimum criteria <55 5 (FX) does not meet the minimum criteria <50</p>
<p>6. Literature: Obligatory:</p> <ol style="list-style-type: none"> 1. Ring ME. Dentistry – An illustrated history. Abradale Press, 1985. 2. Ahmić A et al. Uvod u stomatologiju sa historijom i etikom. Stomatološki fakultet Univerziteta u Sarajevu, Sarajevo, 2018. 3. Omanić A. Uvod u medicinu sa medicinskom deontologijom. TKP Šahinpašić, Sarajevo, 1997. <p>Additional: Wiliams J. Dental Ethics Manual FDI World dental Federation; 2007</p>	

TEACHING PLAN

Week	Teaching methods	Hours

Week 1.	<p>Lecture: Introductory remarks on the course. Definition of dentistry and its position within medicine and society. Significance of history of dentistry: Pre-historic age. Sources for study and the earliest evidence of dental interventions.</p> <p>Practical exercise: Motivation for study. Method of organization of dental study (teaching, scientific research and professional work).</p> <p>Seminar:*</p>	2 1
Week 2.	<p>Lecture: Medicine of ancient nations: Mesopotamia, Old Jews, Egypt, Phoenicians.</p> <p>Practical exercise: Instructions for writing seminars, search of reference data bases and information selection.</p> <p>Seminar:*</p>	2 1
Week 3.	<p>Lecture: Medicine of the Ancient nations: Greece, Rome, Etruscans. Medicine of Oriental nations: China, Japan, India.</p> <p>Practical exercise: Palaeodontology, writing a palaeodontological findings. Seminar:*</p>	2 1
Week 4.	<p>Lecture: Middle Ages: monastic and scholastic medicine. Arab medicine.</p> <p>Practical exercise: The influence of monastic and Arab medicine on the development of medicine and dentistry in B&H and the region.</p> <p>Seminar:*</p>	2 1
Week 5.	<p>Lecture: Medicine and dentistry in the Renaissance and Baroque period. Dentistry in the era of rationalism and in the industrial age.</p> <p>Practical exercise: History of development of dental equipment and instruments.</p> <p>Seminar:*</p>	2 1
Week 6.	<p>Lecture: Historical development of medicine and dentistry in Bosnia and Herzegovina. Practical exercise:</p> <p>Seminar:*</p>	2 1
Week 7.	<p>Lecture: Historical development of professional organizations and publications in dentistry. Professional associations, national and international (USFBiH, SKKS, WHO, FDI, BaSS, WMA, IDEALS...)</p> <p>Practical exercise: Archive of publications.</p> <p>Seminar:*</p>	2 1
Week 8.	<p>Lecture: Organization of dental care (primary, secondary and tertiary level)</p> <p>Practical exercise: Access to information and their use in studies, and in terms of educational, clinical, scientific and practical applications. Contemporary journals, publications, databases.</p> <p>Seminar:*</p>	2 1

Week 9.	<p>Lecture: Tasks and activities of dentists – guidelines of education and basic competences of the future dentist. Interdisciplinary cooperation in diagnosis and therapy of oral diseases. Professional training of dentists and specialized fields of dentistry.</p> <p>Practical exercise: Visit to the dental office and introduction to the working place of a dentist.</p> <p>Seminar:*</p>	2 1
Week 10.	<p>Lecture: Medical ethics and bioethics, medical deontology – general concepts and development through history. Codes of medical ethics. Basic principles (principle of autonomy, harmlessness, benevolence and justice) and derived principles (truthfulness, fidelity, privacy and trust) of medical ethics.</p> <p>Practical exercise: Medical oaths - Hippocratic Oath and Geneva formulation of the Hippocratic Oath, the Oath of Florence Nightingale.</p> <p>Seminar:*</p>	2 1
Week 11.	<p>Lecture: The basic ethical principles of a physician-patient relationship. Knowledge of the patient's right to information, autonomy, confidentiality, to the highest level of dental care. Communication doctor – patient. Ethical attitude of a dentist to certain types of patients (psychiatric patients, handicapped persons, children, geriatric patient,...). Patient's consent to treatment (informed, written, presumed conclusive)..</p> <p>Practical exercise: Practical work with forms of informed consent.</p> <p>Seminar:*</p>	2 1
Week 12.	<p>Lecture: The ethical attitude of the doctor towards the patient, towards colleagues, members of the dental team, towards himself, towards community and towards family of the patient. Great ethical issues of modern medicine. Medical confidentiality - unauthorized disclosure of medical secrets, criminal responsibility of a physician.</p> <p>Practical exercise: Ways of protecting information from unauthorized use.</p> <p>Seminar:*</p>	2 1
Week 13.	<p>Lecture: Experiment on human (therapeutic, biological). The Helsinki Declaration. Good Clinical Practice - the ethical and scientific standard of clinical tests. Voluntary consent of the informed patient. Responsibility of researcher. An Independent Ethical Committee, its composition and tasks.</p> <p>Practical exercise: Scientific and experimental work in dental office.</p> <p>Seminar:*</p>	2 1
Week 14.	<p>Lecture: Medical Law - positive aspects of Medical Law. The moral character of the doctor, the ethical attitude of the doctor towards himself, towards his profession and towards society. Iatrogenia and iatrogenic diseases and injuries. Mistakes in medicine and dentistry - the problem of malpractice.</p> <p>Practical exercise: Vitium artis in dental practice.</p> <p>Seminar:*</p>	2 1

Week 15.	<p>Lecture: Ethical dilemmas in everyday dental practice (local anesthesia, unnecessary treatment, denial of treatment, ...). Ethical problems of private dental practice (ethical aspect of profit, self-advertising, business competition, duality labor). Ethical problems in the healthcare institution, work control in healthcare.</p> <p>Practical exercise: Discussion of examples from practice.</p> <p>SECOND PARTIAL EXAM!</p> <p>Seminar:*</p>	2 1
Week 17.	Final exam	
Week 18.-20.	Exam- the second term	

* Students will defend their seminar work during semester, in groups of five to ten students in terms agreed upon with responsible teachers and assistants.

Code: SFSIM0202E		COURSE TITLE: HYGIENE AND SOCIAL MEDICINE (HYGIENE)	
Level of study: undergraduate	Year: I	Semester: II	ECTS credits : 6
Course status: elective		Total classes: 22,5	
Professor in charge:			
Entry requirements: no entry requirements			
1. Course objectives:	The aim of the course is to enable students to observe the health of the individual and in the population depending on the overall environmental factors influence.		
2. Course purpose:	The purpose of the course is that the student acquires basic knowledge about the assessment of harmful health effects of environmental factors, as well as about the assessment of the results of environmental monitoring, thus enabling him/her for a multidisciplinary approach in solving complex problems related to living conditions.		

<p>3. Learning outcomes:</p>	<p>Module 1. Essential ecological problems The goal of the module is introduction with the most significant environmental problems, such as atmospheric pollution and the presence of greenhouse effect gases, global warming and health effects.</p> <p>Module 2. Health effects of physical factors The goal of the module is training for assessing health risks under the influence of physical factors and the adoption of therapeutic priorities in the treatment of patients with disorders caused by the influence of physical factors.</p> <p>Module 3. Communal hygiene problems The goal of the module is to acquire basic knowledge about the health effects of water pollution, housing and health.</p> <p>Module 4. Nutrition and health The goal of the module is introduction with the public health significance of the nutrition.</p> <p>The skills that a student needs to know</p> <ul style="list-style-type: none"> - measurement of physical factors and interpretation of results - applying methods for determining of nutrition status - assessment of living and working conditions in settlements <p>After course classes, the student should adopt the following attitudes:</p> <ul style="list-style-type: none"> - critically assess the impacts of individual environmental factors - knowledge of methodology of choice in solving basic hygienic and communal problems
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	<ul style="list-style-type: none"> - taking part in interdisciplinary work on rehabilitation or elimination of an unfavorable environmental factors
<p>4. Learning methods:</p>	<p>Course classes are held in a form of:</p> <ul style="list-style-type: none"> - lectures - practical exercises <p>Within the predicted number of classes, there will be forms of continuous knowledge testing (short tests / quizzes).</p>

<p>5. Methods for student knowledge assessment</p>	<p>The evaluation contains the following elements:</p> <p>Continuous knowledge testing It includes short quizzes and skill tests assessment. Students will have short tests / quizzes (6 quizzes) - each quiz has 5 questions with 3-5 answers. The maximum number of points a student can win through this type of knowledge test is 5, and a minimum of 3 points.</p> <p>Final exam The final exam is a practical part of the exam and final written test.</p> <p>Practical part of the final exam The practical part of the final exam involves assessing the skills acquired through Modules 1-4. Evaluation of the acquired skills is accomplished by fulfilling the tasks previously defined in the checklist. Each task carries a certain number of points. The maximum number of points scored is 20. In order to qualify a practical exam as passed, a student must score a minimum of 12 points, whereby the points scored are added to the other points in forming the final grade.</p> <p>Written part of the final exam The written part of the final exam is a test with 10 questions, which will assess the knowledge adopted through Modules 1-4. Each correct answer will be evaluated by 5 points, with a total of 50 points. To pass this exam, students must score at least 28 points. The number of points scored in this exam is added to the other points for concluding the final grade.</p> <p>Final grade is formed as follows: 10 (A) - 95-100 points; 9 (B) - 85-94 points; 8 (C) - 75-84 points; 7 (D) - 65-74 points; 6 (E) - 55-64 points; 5 (F, FX) - under 55 points. Note: Course Hygiene is part of common course Hygiene and Social Medicine. There are no conditions for entering the final exam in Hygiene. The final grade from common course Hygiene and Social Medicine is the average value of individual final grades from these two individual courses.</p>
<p>6. Recommended literature</p>	<ol style="list-style-type: none"> 1. Frumkin H. Environmental Health: From Global to Local. San Francisco: Jossey-Bass; 2010. 2. Zhang C. Fundamentals of Environmental Sampling and Analysis. Hoboken, NJ: John Wiley & Sons; 2007.

7. Exam questions and weekly teaching plan	Exam questions and weekly teaching plan are corresponding to the course learning outcomes and knowledge assessment methods from this and next part of common syllabus (Social medicine).
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Code: SFSIM0202E	COURSE TITLE: HYGIENE AND SOCIAL MEDICINE (SOCIAL MEDICINE)		
Level of study: undergraduate	Year: I	Semester: II	ECTS credits: 6
Course status: elective		Total classes: 22,5	
Professor in charge:			
Entry requirements: no entry requirements			
1. Course objectives:	The objective of the course is to help students acquire basic knowledge about the impact of social and medical factors on health and illness, as well as with the ways of organization and functioning of the health system and health care.		
2. Course purpose:	The purpose of the course is that the student adopt a social medical approach in observation and research, which will help to a more successful practice of a doctor of dental medicine in improving the health care of the population.		

<p>3. Learning outcomes:</p>	<p>Through the course content the students will adopt the following knowledge:</p> <p>Module 1. Health and determinants of health The goal of the module is to understand social medicine as a health discipline that emphasizes the importance of the health of an individual and society, introduces models of health, defines the basic determinants of health and the risky health behavior of the individual and acquires knowledge and skills for conducting health promotion, disease prevention and health education.</p> <p>Module 2. Population and its social and medical characteristics with a social and medical approach to solving basic health problems in the population The goal of the module is to understand the importance of the social and medical approach in solving the basic problems of an individual, primary communities and population groups with the support of basic information on health and illness and the development of dental health care programs</p> <p>Module 3. Health care system, resources, organization and management, with a focus on dental health care The goal of the module is to acquire basic knowledge about the characteristics, organization and management of the health care system and the necessary health resources for its functioning; acquiring basic knowledge on ways of financing of health care, the ways of paying for health care services, and the cost of health and illness; evaluation and quality control in dental health care The skills that a student needs to know</p> <ol style="list-style-type: none"> 1. critical use of indicators 2. observing the problem of an unhealthy way of life
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	<ol style="list-style-type: none"> 3. evaluation of interaction of subsystems in the health care system 4. direct and indirect costs of health and illness 5. use of methods and means for health improvement <p>After attending classes, the student should adopt the following attitudes:</p> <ol style="list-style-type: none"> 1. The most important task of the dentist is the maintenance and improvement of the oral health of the individual and in the community 2. Individual oral health is a precondition for general health 3. Health and illness are economic categories 4. Health is a social category 5. A well-organized health care system is one of the prerequisites for good dental health care within the country
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4. Learning methods:	<p>Course content takes place in the form of: Lectures for all students with their active participation (type of short tests / quizzes with 5 questions, total of 5 tests) Practical exercises of individual type based on examples from practice and problem-oriented. Consultations before the final exam.</p>
5. Methods for student knowledge assessment	<p>The assessment includes the following elements: Short tests / quizzes carry 10 points, minimum 6 points, Practical exercises: maximum number of points 20, minimum score is 11 points Partial exam is in written form and contains a practical assignment, MCQ and essay questions that carry a maximum of 70, minimum 38 points. Final exam for students who did not satisfy the partial exam.</p> <p>Final grade is formed as follows: 10 (A) - 95-100 points; 9 (B) - 85-94 points; 8 (C) - 75-84 points; 7 (D) - 65-74 points; 6 (E) - 55-64 points; 5 (F, FX) - under 55 points.</p> <p>Note: Course Social medicine is part of common course Hygiene and Social Medicine. There are no conditions for entering the final exam in Social medicine. The final grade from common course Hygiene and Social Medicine is the average value of individual final grades from these two individual courses.</p>
6. Recommended literature	<ol style="list-style-type: none"> 1. Roberts M, Hsiao W, Berman P, Reich M. Getting health reform right. The World Washington: Bank Institute and Harvard School of Public Health; 2001. 2. Robinson J, Elkan R. Health Needs Assessment. UK: Churchill Livingstone; 2002.
	<ol style="list-style-type: none"> 3. Mossialos E, Dixon A, Figueras J, Kutzin J. Funding health care options for Europe - European Observatory on Health Care Systems Series. Buckingham - Philadelphia: Open University Press; 2002.
7. Exam questions and weekly teaching plan	<p>Exam questions and weekly teaching plan are corresponding to the course learning outcomes and knowledge assessment methods from this and previous part of common syllabus (Hygiene).</p>

Code: SFSIO0203E		COURSE TITLE: INFORMATICS	
Level of study: undergraduate	Year: I	Semester: II	ECTS credits: 6
Course status: elective		Total classes: 45	
Professor in charge:			
Entry requirements: no entry requirements			
1. Course objectives:	Introduction to basic principles of medical informatics and electronic environment, as a part of future integrated and unique international health informatics system. Basics of statistics. Principal goal in this course is to teach concepts in biomedical informatics-the study of biomedical information and its use in decision making and to illustrate them in the context of descriptions of representative systems that are use today.		
2. Course purpose:	Introduction to process of information generation, transfer, storage and us, aiming to solve various health/medical issues. Understanding of basic principles of informatics and data coding. Basic skills in contemporary literature reading and follow up using contemporary search engines.		

3. Learning outcomes:	<p>Lecture topics:</p> <p>Computers, internet, and network basics Computer industry Computer hardware Computer software File management, virus protection, and data backup Internet and LAN technology Websites and E-commerce Databases Algorithms, programming languages and computer programming Information systems Analysis and design of information systems Modeling of information systems Information systems architecture The quality of the information system Strategic management of the information system</p> <p>Practical exercises topics:</p> <p>Windows operating system-basics Windows operating system (utility programs) MS Word (text formatting) MS Word (creating documents for different purposes) MS Word (graphics) MS Word (tables) MS Excel and MS Word MS Excel (tables) MS Excel (calculations) MS Excell(diagrams)</p>
	<p>MS Power point MS Power point, MS Excel, and MS Word Websites and HTML Maintenance and security of computers Preparing for the exam</p>
4. Learning methods:	<p>The course content will be presented in the form of:</p> <ul style="list-style-type: none"> - lectures, - practical exercises.
5. Methods for student knowledge assessment	<p>Final grade is formed as follows:</p> <p>10 (A) - 95-100 points; 9 (B) - 85-94 points; 8 (C) - 75-84 points; 7 (D) - 65-74 points; 6 (E) - 55-64 points; 5 (F, FX) - under 55 points.</p>

6. Recommended literature	<ol style="list-style-type: none"> 1. Bommel van HJ, Musen AM. Handbook of Medical Informatics. Springer Verlag; 1997. 2. Shortliffe EH, Cimino JJ. Biomedical Informatics. Springer Science+Business Media, New York, USA; 2008.
7. Exam questions and weekly teaching plan	Exam questions and weekly teaching plan are corresponding to the course learning outcomes.

Code: SFSIM0107E	COURSE TITLE: INTRODUCTION TO EXPERIMENT AND LABORATORY		
Level of study: undergraduate	Year: I	Semester: I	ECTS credits: 5
Course status: elective		Total classes: 45	
Professor in charge:			
Entry requirements: no entry requirements			
1. Course objectives:	The objective of the course is to provide students with direct access to a large number of laboratories, as well as that students could objectify basic knowledge about science, scientific method and scientific research through theoretical lectures, in order to increase its motivation for acquiring knowledge.		
2. Course purpose:	The purpose of the course is to introduce the student with observational and experimental studies, and their implementation in laboratory conditions.		
3. Learning outcomes:	<p>Through this course content the student will receive relevant information on designing the experiment and objectifying results through laboratory work, and on the basis of the chronology of specific phases of work on clinical and animal samples, and through the design of various biomedical laboratories. They will also be introduced into the bioethical principles of scientific work, legal regulations, search of bibliographic data, standardization of working conditions in the laboratory, and health hazards in experimental work and the procedures of their blockage.</p> <p>Through the course the student should adopt the following skills:</p> <ol style="list-style-type: none"> 1. Database search 2. Designing an experiment. 		

<p>4. Learning methods:</p>	<p>Course takes place in the form of:</p> <ul style="list-style-type: none"> - lectures for all students who have opted for this elective subject - practical exercises for groups of no more than 15 students <p>In order to overwhelm the curriculum, classes are conducted in the form of lectures ex cathedra and interactively. Practical exercises will take place in several laboratories with an emphasis on their specificity.</p>
<p>5. Methods for student knowledge assessment</p>	<ol style="list-style-type: none"> 1. regular course classes attendance - 10 points 2. seminar work on the given topic - 35 points 3. Final exam in written form - 55 points <p>Final grade is formed as follows:</p> <p>10 (A) - 95-100 points; 9 (B) - 85-94 points; 8 (C) - 75-84 points;</p>

	7 (D) - 65-74 points; 6 (E) - 55-64 points; 5 (F, FX) - under 55 points.
6. Recommended literature	lectures handouts
7. Exam questions and weekly teaching plan	Exam questions and weekly teaching plan are corresponding to the course learning outcomes and knowledge assessment methods.

Code: SFSIM0204E		COURSE TITLE: BIOMECHANICS IN DENTISTRY	
Level of study: undergraduate	Year: I	Semester: II	ECTS credits: 6
Course status: elective		Total classes: 45	
Professor in charge:			
Entry requirements: no entry requirements			
1. Course objectives:	Introduction and application of the principles of biomechanics (statics) and establish a basis for understanding the dental oriented matter.		
2. Course purpose:	Student knows how: to decompose force (torque) into components, calculate the value of the components, find the sum of forces and sum of torques, calculate the work of force acting on body, determine the axis of rotation and torque strength, determines the forces that will balance the rigid body, present head, arms, legs, thorax, lower jaw by lever model.		
3. Learning outcomes:	Through the course content the students will adopt knowledge about: Biomechanics. Biostatics. Levers in the human locomotor system. Mechanics of dental materials. Elasticity of biomaterial. Joints as elements of the locomotor system. Mechanics of body fluids. Hemodynamics. Viscosity and viscoelasticity. Surface tension.		
4. Learning methods:	The course content will be presented in a form of: - lectures - practical exercises - seminars.		
5. Methods for student knowledge assessment	Knowledge assessment will be continuously processed in the forms of seminars and partial exams. Final grade is formed as follows: 10 (A) - 95-100 points; 9 (B) - 85-94 points; 8 (C) - 75-84 points; 7 (D) - 65-74 points; 6 (E) - 55-64 points; 5 (F, FX) - under 55 points.		
6. Recommended literature	lectures handouts		

7. Exam questions and weekly teaching plan	Exam questions and weekly teaching plan are corresponding to the course learning outcomes and the knowledge assessment methods.
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**SECOND YEAR COMPULSORY
COURSES**

Code: SFSOM0301E		COURSE TITLE: HUMAN PHYSIOLOGY	
Level: undergraduate	Year: II	Semester: III and IV	ECTS credits: 10
Course status: compulsory		Total classes: 150	
Professor in charge:			
Entry requirements: general requirements for entry in second year of study			
1. Course objectives	<p>Objectives of the course are:</p> <ul style="list-style-type: none"> - getting to know the levels of functional organization of organism, functional systems and basic physiological mechanisms - getting acquainted with neurohumoral regulation of physiological functions - the acquisition of knowledge and skills in the field of human physiology which are necessary to continue education and later work in practice 		
2. Course purpose	<p>The purposes of the course are:</p> <ul style="list-style-type: none"> - the understanding of the physiological mechanisms of the functioning of the human body at different levels (from molecular, cellular and tissue level, to the level of organs and organic systems) and their connection into a single, functional unity - human organism. -developing the conscience of the need for an integrative approach in education and practice 		

<p>3. Learning outcomes</p>	<p>Through theoretical classes, students will acquire the following knowledge:</p> <p>Module 1. INTRODUCTION IN THE HUMAN PHYSIOLOGY, GENERAL PHYSIOLOGY AND PHYSIOLOGY OF CELL MEMBRANE</p> <p>Objective: To introduce a student with:</p> <ul style="list-style-type: none"> - the objectives, tasks and content of the course and the basics of the functional organization of the human body; - compartments and characteristics of body fluids; - homeostases and principles of mechanisms for their maintenance; - functional structure of biological membranes; types and characteristics of ion channels; characteristics and types of transport through the cell membrane <p>Module 2. PHYSIOLOGY OF EXCITABLE TISSUES</p> <p>Objective: Introduction with:</p> <p>-bioelectric potentials (diffusion potential, equilibrium potential, resting membrane potential and action potential); the basics of physiological structure and functions of excitable tissues: nerve (neuron) and muscle tissue (skeletal, cardiac, smooth muscles, contraction mechanism, way of irritation and the method of transmitting the signals to the muscle cells)</p>
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Module 3. PHYSIOLOGY OF THE CARDIOVASCULAR SYSTEM

Objective: Introduction with:

- functional organization of the cardiovascular system, automatism of cardiac contractions, bioelectric activity of the heart, the basics of ECG, changes in pressure and volume during the cardiac cycle, heart sounds, and regulation of cardiac action.
- physiological characteristics of blood vessels, basics of hemodynamics, microcirculation, lymphatic system, arterial blood pressure and circulatory regulation mechanisms.

Module 4. PHYSIOLOGY OF BLOOD

Objective: Introduction with:

- the composition and physiological roles of blood and blood elements;
- hemostasis and physiological basics of immunity.

Module 5. PHYSIOLOGY OF RESPIRATORY SYSTEM

Objective: Getting to know the functional organization of the respiratory system, mechanics of respirations, gas exchange and transport, and breathing regulation.

Module 6. PHYSIOLOGY OF GASTROINTESTINAL SYSTEM

Objective: Getting to know with

- functional organization of the gastrointestinal system, motility of the parts of the digestive tube and its nerve and humoral regulation;
- physiology of chewing, role and function of mastication muscles, muscular sensory receptors, chewing reflex, an act of swallowing; - the principles of secretion of digestive juices and their regulation; saliva, composition, organic and inorganic ingredients and their physiological roles, secretion mechanism, nerve and humoral control of secretion, innervation and characteristics of the circulation of salivary glands;
- the composition and roles of digestive juices (gastric, intestinal, pancreatic juice, bile, secretion in the large intestine)
- basics of digestion and absorption of nutrients and regulation of the food input;
- basics of energy metabolism and thermoregulation.

Module 7. PHYSIOLOGY OF THE URINARY SYSTEM

Objective: Getting to know with

- functional organization of the urinary system, processes of creating and urine processing
- mechanisms of their regulation
- micturition reflex
- the role of the kidneys in regulation of the volume and composition of body fluids (isoionia, isotonia) and maintenance of acid-base balance.

Module 8. PHYSIOLOGY OF NERVOUS SYSTEM AND SENSORY ORGANS

Objective: Introduction with:

- general organization of the nervous system, sensory and motor axis of the nervous system, physiological structure and function of synapses, neurotransmitters and neuromodulators,
- sensory receptors, neural information processing circuits; somatic sensations (oral cavity receptors - pressure, pain, temperature; sensitive transmission through the dental tissue; pain caused by dental factors, vascular pain, muscle pain, salivary glands and pain, theories of pain)
- specific senses (sense of smell, taste, vision, hearing and balance) - levels of motor control (spinal cord, brainstem, cerebellum, basal ganglia)
- the role of the nervous system in intellectual functions and role of limbic system
- the basics of functional organization and the role of the autonomous nervous system, neurotransmitters, and receptor types

Module 9. PHYSIOLOGY OF ENDOCRINE SYSTEM

Objective: Getting to know the function of endocrine glands and regulation of their function (neuroendocrine connection - axis of hypothalamus-pituitary gland; pituitary and thyroid gland, endocrine pancreas, adrenal glands, parathyroid gland, calcium and phosphate ions metabolism, sex glands).

Within the practical exercises of this course the student will overwhelm the following skills:

1. The skills that a student must adopt and be able to use practically:

- registration and analysis of ECG
- auscultation of heart tones
- pulse testing
- measuring blood pressure
- static spirometry and spirogram analysis
- reflexes examination (tendinous, skin, mucous)
- examine tactile sensitivity on the skin
- threshold for distinguishing two points in the sense of a touch
- determining the adaptation of temperature receptors
- examine taste sensations
- recognition of the lenses
- determining the visual acuity
- perform a direct pupillary reflex
- test the consensual reaction to light
- determine the power and width of accommodation
- proving the existence of a blind spot
- Rinne and Weber tests
- obtaining blood plasma and serum
- determination of the rate of sedimentation of erythrocytes

	<ul style="list-style-type: none"> - determine the number of erythrocytes - determination of hemoglobin by Sahli - determining the value of hematocrit - determine the number of leukocytes - determination of differential blood count - determine Duke's bleeding time - determination of coagulation time by Bürker - determination of blood groups within the ABO and Rh system – erythrocyte hemolysis and determination of osmotic resistance of erythrocytes - testing the flow of unstimulated and stimulated saliva - determine the blood glucose concentration <p>2. Skills that students must know without practical implementation:</p> <ul style="list-style-type: none"> - registration of the resting membrane and action potential - registration of simple and summed muscle contraction and relationship between the length and muscle tension - electroencephalography - Scheiner's experiment - assessment of the effectiveness of physiological mechanisms in compensation of acid-base disorders - assessment of the effect of thyroid hormones on intensity of basal metabolism - assessment of the impact of body mass on intensity of basal metabolism - calculation of the basal metabolism value - calculate the body mass index - examination of the kidney function <ul style="list-style-type: none"> • calculation of clearance • calculation of net filtration pressure • calculation of net reabsorption pressure - determination of pregnancy through the level of hCG in the urine <p>Throughout the course the student will adopt the following attitudes:</p> <ol style="list-style-type: none"> 1. Knowledge of physiological mechanisms is necessary preparation for dental practice. 2. The acquired knowledge and skills in the field of physiology are from extremely importance for the understanding of pathophysiological mechanisms for the emergence and development of diseases and are necessary for successfully mastering clinical knowledge and skills 3. Correction of disorders by therapeutic procedures is done by establishing a physiological equilibrium.
<p>4. Learning methods</p>	<p>The course content will be in form of lectures and practical exercises</p>

<p>5. Methods of student knowledge assessment</p>	<p>Knowledge and skills are evaluated continuously during the semesters and in a final exam. Students are required to access all forms of knowledge testing during the semesters.</p> <p>During each form of knowledge check, students receive a certain number of points. For each form of knowledge check, a minimal number of points that student must achieve is defined</p> <p>CONTINUOUS KNOWLEDGE CHECK During practical exercises in the III semester continuous knowledge and skills checking will be conducted through two colloquiums from the field:</p> <p>Colloquium 1. General physiology, physiology of excitable tissues and cardiovascular system Colloquium 2. Physiology of blood, respiratory and gastrointestinal system</p> <p>In the IV semester there will be a continuous examination of knowledge and skills through 2 colloquiums from the field:</p> <p>Colloquium 3. Physiology of the urinary system, central nervous system - somatic sensations Colloquium 4. Central nervous system - senses and reflexes, endocrine system</p> <p>The maximum number of points per one colloquium is 5, and the minimum (as the condition for exam passing) is 2.75 points for each of colloquiums. In this form of assessment student can score a maximum of 20 points. Student must score a minimum of 11 points in order to pass the practical part of the exam.</p> <p>The examination of theoretical knowledge is carried out through 2 partial exams Partial exam 1 Assessment of knowledge acquired through modules from 1 to 6 takes place in week 15 of the III semester. This exam is in combined written form (MCQ test and essay), with maximally 40 points that could be scored, and minimally 22 points for its passing.</p> <p>Partial exam 2 Assessment of knowledge adopted through modules 7-9 takes place in week 15 of the IV semester. This exam is in written MCQ test form, with maximally 40 points that could be scored, and minimally 22 points for its passing.</p> <p>FINAL EXAM</p>
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	<p>The types of muscles and their physiological characteristics (skeletal, cardiac, smooth).</p> <p>Practical exercises: Resting membrane potential. Registration of an action potentials. Transfer of impulses from the nerve to the muscle</p>	2
Week 3	<p>Lecture: The method of transferring signals to muscle cells. Basic mechanisms of muscle contraction and contraction of the whole muscle.</p> <p>Lecture: Tonus. Muscular contraction energy. Mechanism of contractions and stimulation of smooth muscle.</p> <p>Practical exercises: Simple muscle contraction. Summed muscular contractions. Relationship between the length and muscle tension (CD simulation). The Frank-Starling law. Muscle tonus (CD presentation)</p>	4 2
Week 4	<p>Lecture: Physiological characteristics and action potential of the cardiac muscle. Functional organization of the cardiovascular system</p> <p>Lecture: Automatism and regulation of cardiac function</p> <p>Practical exercises: Functional organization of the cardiovascular system (CD simulation). Physiological characteristics of the cardiac muscle (CD simulation). Action potential of the cardiac muscle (CD simulation)</p>	4 2
Week 5	<p>Lecture: Bioelectric activity of the heart.</p> <p>Lecture: Heart cycle. Role of the heart valves, heart tones.</p> <p>Practical exercises: Registration and analysis of ECG</p>	4 2
Week 6	<p>Lecture: General overview of circulation (relationship between pressure, flow and resistance). Physiological characteristics of blood vessels, function of arteries and veins. Pulse.</p> <p>Lecture: Microcirculation and lymphatic system. Tissue control and humoral regulation of local blood flow.</p> <p>Practical exercises: Auscultation of heart tones. Pulse testing</p>	4 2
Week 7	<p>Lecture: Nervous regulation of circulation. Arterial blood pressure, rapid control of arterial blood pressure</p>	4

	<p>Lecture: Arterial blood pressure control (mid-term and long-term)</p> <p>Practical exercises: Measurement of blood pressure</p>	2
Week 8	<p>Lecture: Cardiac minute volume and venous return and their regulation.</p> <p>Lecture: Composition and physiological roles of blood. Erythrocytes. Hemoglobin.</p> <p>Practical exercises: Colloquium 1 - General physiology, physiology of excitable tissues and cardiovascular system</p>	4 2
Week 9	<p>Lecture: Blood groups. Platelets. Hemostasis.</p> <p>Lecture: Leukocytes and defense of the organism from infection. Physiological basics of immunity</p> <p>Practical exercises: Blood sampling procedures. Obtaining plasma and serum. Determination of hematocrit. Hemolysis of erythrocytes. Osmotic resistance of erythrocytes. Sedimentation of erythrocytes</p>	4 2
Week 10	<p>Lecture: Functional organization of the respiratory tract. Composition of atmospheric and alveolar air. The role of respiratory roads, dead space.</p> <p>Lecture: Breathing mechanics. Respiratory membrane, exchange of gases through the membrane. Pulmonary circulation</p> <p>Practical exercises: Counting of erythrocytes. Determination of hemoglobin. Determination of blood groups.</p>	4 2
Week 11	<p>Lecture: Transport of gases within blood. Breathing regulation. Role of lungs in regulation of acid-base balance.</p> <p>Lecture: Functional organization, physiological materials, innervation and basics of mobility of the gastrointestinal system.</p> <p>Practical exercises: Determination of bleeding time. Determination of time of coagulation. Visit to the Institute of Transfusion. Determination of the Rh factor. Counting of leukocytes. Differential blood count</p>	4 2

Week 12	<p>Lecture: The way of taking food. Physiology of chewing, mastication muscles, muscle receptors, chewing reflex; act of swallowing.</p> <p>Lecture: Motoric functions of the stomach, movements of small and large intestine. Defecation.</p> <p>Practical exercises: Breathing mechanics (computer simulation)</p>	<p>4</p> <p>2</p>
Week 13	<p>Lecture: Secretion in digestive system. Principles and regulation of secretion of digestive juices. Saliva - composition, organic and organic ingredients and their physiological roles, mechanism of secretion, nerve and humoral control of secretion. Innervation and characteristics of the circulation of the salivary glands.</p> <p>Lecture: The composition and role of digestive juices: gastric, intestinal, secretion in the large intestine.</p> <p>Practical exercises: Static spirometry (pulmonary volume and capacity) (BIOPAC). Spirogram analysis.</p> <p>Repeating the adopted skills</p>	<p>4</p> <p>2</p>
Week 14	<p>Lecture: Pancreatic juice, bile. Digestion and absorption of food.</p> <p>Lecture: Energy and intensity of metabolism. Balance of food input</p> <p>Practical exercises: Estimation of the flow of unstimulated and stimulated saliva</p>	<p>4</p> <p>2</p>
Week 15	<p>Lecture: Thermoregulation</p> <p>LECTURE: PARTIAL EXAM 1</p> <p>Practical exercises: Colloquium 2 - Physiology of blood, respiratory and gastrointestinal system</p>	<p>4</p> <p>2</p>

IV SEMESTER

Week	Course form and content	Number of classes
Week 1	Lecture: Functional organization of the urinary system. Nephron, renal blood flow. Blood flow through the kidney and processes of urine production (glomerular filtration). Mechanisms of their regulation.	2
	Practical exercises: Analysis of renal function in the simulated model. Glomerular Filtration (CD Presentation)	2
Week 2	Lecture: Reabsorption and secretion in renal tubules and control over them (concentration and dilution). Composition definitive urine. Reflex of micturition.	2
	Practical exercises: Estimation of kidney function (calculation of clearance, net filtration and net reabsorption pressure).	2
Week 3	Lecture: Control of osmolality and concentration of sodium ions in ECT. Thirst. Isotonia, isoionia. Regulation of acidbase status (role of kidneys).	2
	Practical exercises: Acid-base equilibrium - assessment of efficiency of physiological mechanisms in the compensation of acidosis disorders (CD presentation)	2
Week 4	Lecture: General organization of the nervous system, sensory and motor axis of the nervous system. Synapses, neurotransmitters and modulators. Sensitive receptors. Receptor potential. Somatic sensations.	2
	Practical exercises: Examination of tactile sensitivity to the skin. Threshold for differentiation of two points in the sense of touch. Adaptation of temperature receptors.	2
Week 5	Lecture: Pain physiology (oral cavity receptors - pressure, pain, temperature; sensitive transmission through the dental tissues; pain caused by dental factors, vascular pain, muscular pain, salivary glands and pain, pain theories)	2
	Practical exercises: Colloquium 3 - Urinary system and central nervous system-somatic sensations	2
Week 6	Lecture: Sense of smell, taste. Sense of hearing and balance	2
	Practical exercises: Testing the sensation of taste. Conducting sounds through the bone: Rinne and Weber test. Localization of the sound source	2
Week 7	Lecture: Optics of vision. Neurophysiology of vision.	2

	Practical exercises: Recognition of the lenses. Determination of visual acuity. Proving the existence of a blind spot (Marriott test).	2
Week 8	Lecture: Motor control - spinal cord, brainstem, cerebellum, basal ganglia. Practical exercises: Accommodation (Scheiner experiment). Determination of accommodation capacity and accommodation width. Direct pupillary reflex and consensual reaction to light.	2 2
Week 9	Lecture: The roles of the nervous system in intellectual functions, limbic system. Practical exercises: Examination of reflexes (tendinous, skin and mucous). Electroencephalography - demonstration	2 2
Week 10	Lecture: Vegetative nervous system, functional organization: sympathetic and parasympathetic. Autonomous reflexes Practical exercises: Calculation of body mass index. Determination of basal metabolism values.	2 2
Week 11	Lecture: Functional organization of the endocrine system, hormones, control and regulation of secretion. Neuroendocrine connection: hypothalamus, pituitary gland. Practical exercises: Influence of body mass on the intensity of basal metabolism (CD presentation)	2 2
Week 12	Lecture: Thyroid gland. Endocrine pancreas. Isoglycemia. Practical exercises: The effect of thyroid hormone on the intensity of the basal metabolism	2 2
Week 13	Lecture: Parathyroid gland. Adrenal glands. Practical exercises: Determination of blood glucose concentration, isoglycemia	2 2
Week 14	Lecture: Sexual glands Practical exercises: Monthly ovarian cycle and pregnancy test	2 2

Week 15	Lecture: PARTIAL EXAM 2	2
	Practical exercises: Colloquium 4 - CNS senses and reflexes, endocrine system	2
Week 17-18	Final exam	
Week 19-20	Additional classes and retaking of final exam	

Code:	Course title: PATHOLOGY		
Level: undergraduate	Study year: II	Semester: IV	ECTS: 9
Status: obligatory	Weeks: 15	Total contact hours: 90 (60+30)	
Responsible teacher: _____			
Prerequisites: According to the Study Regulation			
1. Overall aim	The overall aim of the Pathology course is to provide knowledge about general principles of pathology including etiology of most frequent diseases, mechanisms of cells, tissues and organs damage and to introduce morphological changes that are basis of the disease or represent its consequence.		
2. Purpose of the subject	<p>The task of the Pathology course is to enable the students to recognize morphological changes in cells, tissues and organs based on the acquired theoretical knowledge, as well as to gain their own experience analyzing microscopic tissue samples.</p> <p>The acquired knowledge and skills should enable better understanding causes and mechanisms of disease and to facilitate gaining knowledge of the functional consequences of the morphological changes.</p> <p>The task of Pathology, as a clinical-theoretical subject, is to connect the previous basic study courses, studying structure and function of normal human body, with clinical disciplines.</p>		

<p>3. Learning outcomes (knowledge, skills and competence)</p>	<p>Through the Pathology course students will gain following knowledge and ability to recognize:</p> <p>Module 1. Cell pathology</p> <p>Basic pathological changes on cellular and subcellular level with cell damage morphology, cell adjustment to growth and differentiation with developmental forms of pathological changes as well;</p> <p>Module 2. Hemodynamic disorders</p> <p>Disorders of body fluids and hemodynamic changes, their etiopathogenesis, morphological changes and consequences;</p> <p>Module 3. Inflammation</p> <p>Biochemical events, outcome and morphological forms of acute and chronic inflammation, chemical mediators and possible responses of the organism to the infection;</p> <p>Module 4. Immunopathology</p> <p>Disorders of the immune system and mechanisms of their generating, as well as diseases which are their consequences.</p> <p>Module 5. Tumor pathology</p> <p>Ethiological, morphological, molecular and clinical characteristics of malignancies as well about their classification.</p> <p>Module 6. Pathology of blood vessels and heart</p> <p>Most common diseases of arteries (arteriosclerosis and aneurysms), venous disorders (varicosities, phlebothrombosis, thrombophlebitis) tumors of blood vessels; disorders of heart-congestive heart failure, ischemic heart disease, hypertensive heart disease, pulmonary heart disorder, endocardial and valvular disorders, myocardial and pericardial disorders.</p> <p>Module 7. Pathology of gastrointestinal system</p>
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	<p>Inflammatory and tumor processes of oral cavity, esophagus, stomach, small and large intestines; liver and biliary tract; pancreas inflammatory disorders, tumors of exocrine pancreas.</p> <p>Module 8. Pathology of hematopoietic system</p> <p>Disorders of white and red blood cell lineage, platelet disorders and disorders of hematopoietic system.</p> <p>Module 9. Pathology of respiratory system</p> <p>Obstructive and restrictive disorders of lungs, vascular disorders of lung, lung infections and tumors;</p> <p>Module 10. Pathology of kidneys and urinary tract</p> <p>The disorders of glomeruli, tubules, renal interstitial disorders, disorders of blood vessels, renal tumors and its collecting system;</p> <p>Module 11. Pathology of male and female genital system and breast</p> <p>Most common disorders of male and female genital tract and breast;</p> <p>Module 12. Endocrine system disorders</p> <p>Inflammatory conditions, functional disorders and tumors of thyroid gland and adrenal gland;</p> <p>Module 13. Central and peripheral nerve system pathology</p> <p>Inflammation, trauma, vascular disorders, autoimmune diseases, degenerative disorders and tumors of central and peripheral nervous system;</p> <p>Through the lectures of above listed modules and practical work students will acquire following knowledge and skills:</p> <ul style="list-style-type: none"> - Microscopic level identification and recognition of pathological changes; - Macroscopic observation, identification and recognition of pathological changes;
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	<ul style="list-style-type: none"> - To apply visible pathological changes from general pathology to any organic system; - To discover the essences of pathological processes, etiology, morphology and clinical features in the most common diseases; - The recognition and appreciation that each organ system is not equally affected by certain pathological process; - The recognition that the clinical characteristics of certain pathology process are individually different; - The pathology is a clinical science as well, within other clinical specialities; - Histopathologic reports are used for treatment and prognosis of disease.
<p>4. Teaching methods</p>	<ul style="list-style-type: none"> - lectures: 60 hours for all students - practical work: 30 hours for groups up to 10 students
<p>5. Methods of knowledge assessment and examination</p>	<p>Students are required to take a part in all forms of evaluation during the semester.</p> <p>1. CONTINUOUS EVALUATION OF KNOWLEDGE – 100 points:</p> <p>a. Histopathology examination (Exercise 1-6) The evaluation scale has a maximum of 10 points. Minimal requirement for completing this part of exam is scored 6 points. The student gets 3 microscopic slides, each worth 2 points. Student needs to recognize the lesion, write the correct diagnosis in Latin and correctly describe the morphological changes.</p> <p>b. First partial exam (Module 1-5) First partial exam is designed as 4 essay questions. The grading scale has a maximum of 40 points. To pass the exam the student must meet the minimum criteria and score 22 points. Each question is worth 10 points. Since each question includes one module (topic), it is necessary to give a positive answer (at least 5.5 points) for each question.</p> <p>c. Histopathology examination (Exercise 7-12) The evaluation scale has a maximum of 10 points. Minimal requirement for completing this part of exam is scored 6 points. The student gets 3 microscopic slides, each worth 2 points. Student needs to recognize the lesion, write the correct diagnosis in Latin and correctly describe the morphological changes.</p> <p>d. Second partial exam (Module 6-13) First partial exam is designed as 4 essay questions. The grading scale has a maximum of 40 points. To pass the exam the student must meet the minimum criteria and score 22 points. Each question is worth 10 points. Since each question includes one module (topic), it is necessary to give a positive answer (at least 5.5 points) for each question.</p>

2. FINAL EXAM

If the student did not complete one of the forms of continued evaluation during the semester, the same takes in final exam as it follows:

- for histopathology examination (3 microscopic slides for exercise 1-6 and/or 3 microscopic slides for exercise 7-12), with maximum score of **10 points**. Minimal requirement for completing this part of exam is 6 points. The student needs to recognize the lesion, write the correct diagnosis in Latin and correctly describe morphological changes.
- **4 essay questions** for Module 1-5, each worth 10 points. The grading scale has a **maximum of 40 points**. To pass the exam student must meet minimal criteria by scoring 22 points. Since each question includes one module (topic), it is necessary to give a positive answer (to score at least 5.5 points) on each question.
- **4 essay questions** for Module 6-13, each worth 10 points. The grading scale has a **maximum of 40 points**. To pass the exam student must meet minimal criteria by scoring 22 points. Since each question includes one module (topic), it is necessary to give a positive answer (to score at least 5.5 points) on each question.
- **8 essay questions** for Module 1-13, e.i. if the student did not complete partial exam 1 and 2. Each question is worth 10 points. The grading scale has a **maximum of 80 points**. To pass the exam student must meet minimal criteria by scoring 44 points. Since each question includes one module (topic), it is necessary to give a positive answer (at least 5.5 points) on each question.
- **NOTE:** For student who did not complete partial exams, final exam is integral, i.e. failure in one segment is eliminatory.

Students who are dissatisfied with gained number of points during the continuous examination can also take the final exam. Student submits written request at the Department of pathology for the cancellation of the partial or the complete examination. In that case, only the number of points scored in the final examination is accepted.

3. REMEDIAL EXAM

The remedial exam takes place according to the previously defined criteria of the final exam.

FINAL GRADE is determined based on the following criteria:

Grade	Cumulative points	Grade description
10 (A)	95-100	Remarkable success without mistakes or with minor errors
9 (B)	85-94	Above the average, with some mistakes
8 (C)	75-84	Average, with noticeable errors
7 (D)	65-74	Generally good but with significant shortcomings
6 (E)	55-64	Meets the minimum criteria

	5 (F, FX)	< 55	Does not meet the minimum criteria
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6. Literature	<p>Obligatory:</p> <ol style="list-style-type: none"> Damjanov I. Pathology for the health professions. 5th ed. Elsevier Saunders, 2016. Handouts of the Department of Pathology (Histopathology handouts) <p>Recommended:</p> <ol style="list-style-type: none"> Kumar V, Abbas AK, Aster JC. Robbins & Cotran Pathologic Basis of Disease, 9th ed., Elsevier, 2015
7. Remark	<p>Student attendance is regulated by the Law of Higher Education of Sarajevo Canton. Student absence should be justified by valid documentation. Consultations with teaching staff are possible every working day from 13-14 h with prior announcement to the e-mail address of the Department or teacher.</p>

COURSE PLAN: PATHOLOGY

Week	Form of teaching	Hours
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Week 1.	<p>Lecture: Cell pathology.</p> <p>The cell injury, reversible cell injury, excessive accumulation of metabolites and other substances; cell adaptation mechanisms (atrophy, hypertrophy, hyperplasia, metaplasia, dysplasia), irreversible cell damage (apoptosis, necrosis, calcification).</p> <p>Practical work: Histopathology exercise 1.</p>	<p>4</p> <p>2</p>
Week 2.	<p>Lecture: Hemodynamic disorders. Hemorrhage, hyperemia, ischemia, infarction, thrombosis, embolism, edema, shock.</p> <p>Practical work: Histopathology exercise 2.</p>	<p>4</p> <p>2</p>
Week 3.	<p>Lecture: Inflammation. Acute inflammation: vascular changes, cellular changes and stimuli; chronic inflammation; morphologic patterns of acute and chronic inflammation, systemic effects of inflammation. Specific inflammation. Regeneration and healing of the wound.</p> <p>Practical work: Histopathology exercise 3.</p>	<p>4</p> <p>2</p>
Week 4.	<p>Lecture: Immunopathology.</p> <p>Cells and tissue of immune system; hypersensitive reactions, autoimmune disorders, rejection of the transplant, immune deficiency disorders, amyloidosis.</p> <p>Practical work: Histopathology exercise 4.</p>	<p>4</p> <p>2</p>
Week 5.	<p>Lecture: Tumor pathology. Definition, tumour nomenclature; characteristics of benign and malignant tumours; molecular and cellular basis of cancer (carcinogenesis). Neoplasia - epidemiology, etiology, host defense, tumors of epithelial and mezenchymal origin; tumors of lymphoid tissue.</p> <p>Practical work: Histopathology exercise 5.</p>	<p>4</p> <p>2</p>
Week 6.	<p>Lecture: Pathology of blood vessels and heart.</p> <p>Disorders of arteries: arteriosclerosis and aneurysms. Disorders of veins: varicosities, phlebothrombosis and thrombophlebitis. Disorders of lymphatics. Tumors of blood vessels. Heart disease: ischemic heart disease, hypertensive heart disease, pulmonary heart disorder, endocardial and valvular disorders, myocardial and pericardial disorders.</p> <p>Practical work: Histopathology exercise 6.</p>	<p>4</p> <p>2</p>

Week 7.	First partial exam (Module 1-5)	4
	Histopathology exam (Exercise 1-6)	2
Week 8.	Lecture: Pathology of gastrointestinal system. Oral cavity: inflammatory lesions and tumors; diseases of salivary glands; esophagus: inflammatory lesions and tumors; stomach: gastritis and tumors. Inflammatory and neoplastic disorders of the small and large bowel; liver: viral hepatitis, cirrhosis, tumors; disorders of gall bladder: gallstone disease, cholecystitis, malignant neoplasms. Exocrine pancreas: acute and chronic pancreatitis, malignant neoplasms.	4
	Practical work: Histopathology exercise 7.	2
Week 9.	Lecture: Pathology of hematopoietic system. Red blood cell disorders- anemia, polycythaemia, bleeding disorders; neoplastic disorders of white blood cells, non-Hodgkin and Hodgkin lymphomas.	4
	Practical work: Histopathology exercise 8.	2
Week 10.	Lecture: Pathology of respiratory system. Lesions in the upper respiratory tract; atelectasis, obstructive and restrictive lung disorders, pulmonary disorders of vascular origin, pulmonary infections, lung tumours.	4
	Practical work: Histopathology exercise 9.	2
Week 11.	Lecture: Pathology of kidneys and urinary tract Glomerular diseases, diseases affecting tubules and interstitium, urinary outflow obstruction, tumors.	4
	Practical work: Histopathology exercise 10.	2
Week 12.	Lecture: Pathology of male and female genital system and breast. Female genital system: inflammatory processes, precancerous lesions, neoplasms; breast – fibrocystic change, tumors. Male genital system: inflammatory processes, cryptorchidism and tumors.	4
	Practical work: Histopathology exercise 11.	2
Week 13.	Lecture: Endocrine system disorders. Inflammatory conditions, functional disorders and tumors of thyroid gland and adrenal gland.	4
	Practical work: Histopathology exercise 12.	2
Week 14.	Lecture: Central and peripheral nerve system pathology. Meningitis, intracranial hemorrhage, cerebrovascular disorders, neurodegenerative and autoimmune diseases and tumors.	4
	Practical work: Macroscopic diagnostics – case study.	2

<p>Week 15.</p>	<p>Second partial exam (Module 6-13)</p> <p>Histopathology exam (Exercise 7-12)</p>	<p>4</p> <p>2</p>
<p>Week 17.</p>	<p>Final exam.</p>	
<p>Week 18-20.</p>	<p>Remedial exam.</p>	

Code: SFSOS0302E	COURSE TITLE: THE BASIC PREVENTIVE DENTISTRY AND PUBLIC ORAL HEALTH		
Level: undergraduate	Year: II	Semester: III	ECTS credits:5
Status: obligatory			Total classes: 30+45
Responsible teacher: Head of the department			
Prerequisites no required			
1. Course objectives:	<p>To acquire basic knowledge about the goals and importance of preventive dentistry.</p> <p>To improve knowledge about principles of dental public health; the major health problems of a community (and their determinants); the organisation and delivery of oral health services; research methods, epidemiology and statistics; methods of control and prevention of oral and dental diseases; planning and evaluation for oral health; and social and behavioural sciences as applied to dentistry.</p> <p>To gain the knowledge and to understand the principles of organization, functioning, and financing of the health system and health care.</p>		
2. The aim of the course:	<p>The purpose of the course is to enable a student to participate in a unique dental healthcare process with an aspect of preventive action.</p> <p>Students should be aware of the importance of prevention in dentistry with the aim to improve the oral health of the population.</p> <p>Students should know the elements that affect the oral health of the population as well as the modalities of their prevention and know the strategies and the financial aspect of improving the oral health of the population.</p>		
3. Learning outcomes	<p>Upon completion of this course, students will be able to:</p> <ol style="list-style-type: none"> Name and identify various components and risks that could affect the oral health on a local and national level. Identify and planned the models for the public oral health surveys that are essential in population-based health studies on local and national level. Know and understand the strategies for the planning of preventive programs for oral health protection and to assess the advantages and disadvantages of different programs. Plan and implement preventive measures for all ages and to be familiar with the implementation of preventive measures for persons with special needs and systemic illnesses. 		

	<p>e) Be familiar with the organization of dental health-care and health teams involved in the development of oral health care strategies.</p> <p>f) Know the concepts of financing and health insurance in Bosnia and Herzegovina</p> <p>g) Know the legislation, normative and standards in the process of organization of dental care.</p>
4. Teaching methods	<p>The course is performed in the form of:</p> <ul style="list-style-type: none"> • Lectures ex catedra for all students • Practice exercises- groups according to standard • Interactive learning for all students (during the lectures and practice exercises)
5. Assessment methods	<p>Grades are assigned based on the following criteria (see below):</p> <p>Lecture attendance -5. Points</p> <p>Mandatory attendance on practice exercise-15 points</p> <p>Midterm Exam will be held in the 9th week of course-total 30 points.</p> <p>Midterm Exam is not a prerequisite for the final exam. If the student has failed the midterm exam, he/she is obliged to pass integral course material in the final exam.</p> <p>The Final examination for the students who meet the requirements on Midterm Exam is comprised of multiple choice and short answer questions -50. points.</p> <p>The Final examination for the students who didn't meet the requirements on the Midterm Exam is comprised of multiple choice and short answer questions and the students can achieve a maximum of 80 points.</p> <p>A test is considered to be passed successfully if it has at least 55% of correctly answered questions.</p> <p>Summary: 100 points is possible as a total for all course components</p> <p>The grading scale for this course consists of the standard scale below:</p> <p>A (10) = 95- 100 points</p> <p>B (9) = 85- 94 points</p> <p>C (8) = 75- 84 points</p> <p>D (7) = 65- 74 points</p> <p>E (6) = 55-64 points</p> <p>F below 55 points, minimum requirements have not been achieved.</p>
<p>6. Literature:</p> <p>1.Pine C., Harris R.: „COMMUNITY ORAL HEALTH“, Quintessence Publishing, UK Catalogue, 2007</p> <p>2. Murray J.J.: „PREVENTION OF ORAL DISEASES“, 4th Edition, Oxford University Press, Oxford, 2003.</p>	

Curriculum by weeks

Week	Lectures	Working hours
Week 1.	Lecture: Introduction to preventive dentistry and public oral health (history, development, relevance)	2
	Practice: Course description, an introduction to the syllabus and the methodology of conducting classes and exams.	3
Week 2.	Lecture: The principles of evidence-based dentistry	2
	Practice: Introduction to medical journal search engines.	3
Week 3.	Lecture: Strategies for the improvement of oral health, the levels of prevention and the differences between the three levels of prevention. Public oral health programs (planning, funding, program evaluation, participants).	2
	Practice: Scientific evaluation of scholarly publications.	3
Week 4.	Lecture: The International Classification of Diseases, Injuries, and Causes of Death, application to dentistry and stomatology. Evidence in dentistry.	2
	Practice: Evidence in dentistry and data reporting templates, clinical documentation of dental care/dental records, ICD-11	3
Week 5.	Lecture: WHO Oral health surveys: basic methods Assessment indices used in oral health needs assessment and interpretation of oral health survey data.	2
	Practice: Design of oral health survey for the specific region in Bosnia and Herzegovina using available data.	3
Week 6.	Lecture: Epidemiological indicators of oral health in the world and B&H	2
	Practice: Analyze of data of oral epidemiology collected in simulated oral health survey and evaluation of oral health of different population groups using oral health indices.	3
Week 7.	Lecture: Evaluation of national and local oral health care policy, national oral health care systems. Organization of oral health care system in the world.	2
	Practice: Planning and executing an evidence-based oral health strategy using WHO oral health and health policies for national country.	3
Week 8.	Lecture: Financing of oral health. Economic aspect of health and illness. Health financing models.	2
	Practice: Expenditures and financing for oral health care in specific region (region analysed during previous practice lessons). Identification of major problem in the financing process and proposals for the possible solutions.	3
Week 9.	Midterm Exam	
Week 10.	Lecture: History of health education Oral health promotion and distinguish between health promotion and health education. A motivation for preservation of oral health.	2
	Practice: Preparation of oral health educational material according to the age of the group for which they are intended and their presentation to the class.	3

	Preparation of promotive material for the protection and improvement of oral health according to the age of the group for which they are intended.	
Week 11.	Lecture: Caries risk assessment. Factors that influenced caries and periodontal disease. Practice: Tests for the caries risk assessment.	2 3
Week 12.	Lecture: Nutrition. Systemic and local effect of nutrition on tooth formation process, caries development, and periodontal disease. Cariogenic potential of foods and the methods for assessing the cariogenic potential of foods. Caries protective food. Dietary recommendations for the protection of oral health. Practice: Dietary assessment methods: dietary records (Food diary). Collecting data about the foods and beverages consumed over a previously specified period of time. Motivation for a healthy diet.	2 3
Week 13.	Lecture: Preventive measures for the specific groups (Persons with the physical and mental handicap, medically compromised persons, pregnant women) Practice: Problem based learning (PBL), preparation of individual preventive measures for the specific patient (patients of different age groups, elderly patients, medically compromised patients and patients with special needs)	2 3
Week 14	Lecture: <i>Concepts of oral health, disease and quality of life.</i> Practice: Poll as an instrument for scientific research. Types of a poll.	2 3
Week 15. END OF COURSE	Lecture: Laws and regulations in dental health care. Quality assurance in dentistry. Control and improvement of the quality of work in dental activities. Institutions, health services, professional associations and their role in public oral health. Practice: Patient- centered dental care as a model for better quality of dental care. Patient rights and responsibilities and patient safety under dental care. Analysis of regulations related to dental health care.	2 3
Week 17-18.	The Final examination	
Week 19-20.	The Final remedial examination	

Code: SFSOM0303E		COURSE TITLE: MICROBIOLOGY AND	
		IMMUNOLOGY	
Level: undergraduate	Year: II	Semester: III	ECTS credits : 6
Course status: compulsory		Total classes: 90	

Professor in charge:

Entry requirements: general requirements for entry in second year of study

1. Course objectives	<p>The main objectives of the course are:</p> <ul style="list-style-type: none"> - to introduce a student with the etiological causes of various infectious diseases, with special emphasis on identifying the most common pathogens of oral cavity, their transmission, pathogenesis of the disease, with the definition of the symptoms (leading and general) that define the clinical picture; - to introduce a student with isolation and identification of the causative agent of infectious diseases, testing of antimicrobial susceptibility and resistance of bacteria, as well as with non-specific and specific immune response of the organism to infectious agents.
2. Course purpose	<p>The purpose of the course is to give the student basic knowledge in the field of bacteriology, parasitology, mycology, and virology, as well as with the methods of defending of the organism from specific microorganisms with the possible consequences, both in the oral cavity, and in other organic systems.</p>
3. Learning outcomes	<p>Through the course content students will adopt the following knowledge:</p> <p>MODULE 1: General bacteriology</p> <p>Objective: Getting acquainted with the structure and morphology of bacteria, their metabolism, reproduction and genetics, as well as factors of pathogenicity and virulence, sterilization and disinfection,</p>

and also with antimicrobial sensitivity-resistance. Within this module the student will be able to define the concept of infection and infectious diseases, as well as ways of destruction of the etiological causes of infectious diseases.

MODULE 2: Special bacteriology

Objective: To introduce a student with different aerobic and anaerobic bacterial species, especially with the causative agents of infections of oral mucous membranes.

MODULE 3: Immunology

Objective: To introduce the student about the physiological function of the immune system, nonspecific and specific immunity, as well as about an immune response of the organism to microorganisms.

MODULE 4: General and special parasitology

Objective: To introduce a student with the structure and classification of parasites, protozoa, nematodes and cestodes.

MODULE 5: General and special mycology

Objective: To introduce a student with general characteristics of fungi, morphology, classification, ways of reproduction, pathogenicity, role of various types in the onset of a disease of the oral cavity.

MODULE 6: General and special virology

Objective: To introduce the student with the construction and classification of the viruses, ways of their multiplication, pathogenesis of viral infections. Emphasize the importance of certain types of viruses in dentistry and the specificity of infection control in dentistry.

Through this course after having attended classes students will overwhelm the following skills, to know to:

- determine the type of common pathogens in the oral cavity and get acquainted with microbiological techniques for testing of various biological materials;
- take swabs of the throat, nose and gingiva;
- get acquainted with basic morphological, physiological and immunological characteristics of certain human pathogenic bacterial species;
- identify and analyze microscopically prepared samples;

- visually identify certain macromorphological characteristics of grown colonies;
- recognize the enzymatic activity of certain bacterial genus and species;
- assess the significance of the serological identification and typization of certain types of microorganisms;
- get acquainted with the testing of antimicrobial susceptibility / resistance and interpretation of antibiograms;
- be able to assess the significance of microbiological findings.

After studying course classes the student should adopt the following attitudes:

- correctly assess the value of acquired knowledge from the course subject in solving of etiology of infections of oral mucous membranes caused by bacteria, viruses, parasites and fungi;
- it is important to timely apply antimicrobial therapy.

4. Learning methods The course content will be presented in the form of lectures for all students, seminars and practicals for student groups.

<p>assessment</p>	<p>5. Methods of Knowledge assessment will be carried out continuously during the student knowledge semester.</p> <p>Continuous assessment of knowledge includes: knowledge and skills on practical exercises, knowledge and activities from an interactive seminar classes, and partial exams.</p> <p>The seminars are predefined by the planned topics.</p> <p>Assessment of knowledge during the semester will be assessed according to the foreseen standards and will be evaluated by 55% of the final grade.</p> <p>Practical exercises</p> <p>During the semester, the learned skills will be evaluated through three colloquiums.</p> <p>The maximum number of points per colloquium is 5 (total 15). Minimum number of points for the colloquium to be considered as passed is 3 (total 9). All passed colloquiums are admitted in the final exam. Otherwise they should be retaken in the final exam.</p> <p>Seminars</p> <p>During the semester students will prepare one pre-defined seminar, which is presented in the amphitheater in front of the whole generation and in the presence of teachers. Minimum number of points for the seminar to be considered passed is 5.5, and the maximum number of points that could be scored is 10.</p> <p>First partial exam</p> <p>The first partial exam includes the first three modules (1, 2, and 3). Examination is done in written form through tests including MCQ and essay questions. Maximum number of points that student can score is 30, and minimal number of points that has to be obtained in order that first partial exam is considered as passed is 16.5.</p> <p>This exam will be held after the 3rd module.</p> <p>Second partial exam</p>
	<p>The second partial exam includes the last three modules (4, 5, and 6). Examination is done in written form through tests including MCQ and essay questions. Maximum number of points that student can score is 45, and minimal number of points that has to be obtained in order that</p>

first partial exam is considered as passed is 24.

This exam will be held after the 6th module.

Final exam

Students who did not satisfy the any/or all of the knowledge assessment forms (colloquiums, seminars, partial exams) should retake it/them in the final exam only.

Final grade is formed as follows:

10 (A) - 95-100 points,

9 (B) - 85-94 points,

8 (C) - 75-84 points,

7 (D) - 65 - 74 points,

6 (E) - 55-64 points,

5 (F, FX) - below 55 points.

6. Recommended 1. Murray P. et al. Manual of Clinical Microbiology. Washington

literature:D.C. 9th edition: ASM Press 2011.

	identification methods of bacterial species. Urine culture, coproculture, hemoculture.	
Week 5	Lecture: - Atypical bacteria (Mycoplasma, Chlamydia, Rickettsia, Actinomyces, Nocardia). - Spiral and spirochete bacteria (Treponema, Borrelia, Leptospira, Vibrio, Campylobacter, Helicobacter). Practical exercises: Microscopy of Borrelia sample. Microorganisms of dental plaque, caries and calculus.	4 2
Week 6	Lecture: Introduction to immunology. Non-specific immunity. Seminar 1. Practical exercises: Serological diagnostics.	3 1 2
Week 7	Lecture: Specific immunity. The immune response of the organism to infections caused by various types of microorganisms. Seminar 2. Practical exercises: Antigen-antibody reaction, serological reactions.	3 1 2
Week 8	Lecture: Immunodeficiency states. Defense of the oral cavity. Seminar 3. Practical exercises: Molecular diagnostic procedures.	3 1 2
Week 9	Lecture: Introduction to parasitology. Classification of single-celled and multicellular parasites. Protozoa of gastrointestinal and urogenital tract. Protozoa of blood and tissues.	3

	Seminar 4.	1
	Practical exercises: Microscopy of protozoa samples.	
	First partial exam.	2
Week 10	Lecture: Medically significant helminths: Nematodes and Cestodes.	3
	Seminar 5.	1
	Practical exercises: Identification of nematodes and pathways, microscopy of samples.	2

Week 11	Lecture: Introduction to mycology. Structure and multiplication of single-celled and multicellular fungi. Fungal virulence factors. Fungal diseases. Seminar 6. Practical exercises: Basic principles of diagnostics of fungal diseases	3 1 2
Week 12	Lecture: Candida, Cryptococcus. Dermatophytes, Penicillium, Aspergillus. Seminar 7. Exercises: Laboratory diagnostics of Candida albicans. Microscopy of dermatophytes.	3 1 2
Week 13	Lecture: General virology. Structure, multiplication, and classification of the viruses. Influence of environmental factors on viral particles. Seminar 8. Practical exercises: Proving of the virus.	3 1 2
Week 14	Lecture: Herpesviridae, hepatitis viruses. Seminar 9. Practical exercises: Serological diagnosis of viral infections.	3 1 2
Week 15	Lecture: Orthomyxoviridae, Paramyxoviridae, HIV. Seminar 10. Second partial exam	3 1 2
Week 16		
Week 17-18		

Week 19-20		
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CODE: SFSOM0402E	COURSE TITLE: PATHOPHYSIOLOGY		
Level: undergraduate	Year: II	Semester: IV	ECTS credits: 7
Course status: compulsory		Total classes: 90	
Professor in charge:			
Entry requirements: general requirements for entry in second year of study			
1. Course objectives	Training of students of the Faculty of Dental Medicine in the field of pathophysiology		
2. Course purpose	Adopting knowledge and skills in the field of pathophysiology necessary for the successful continuation of dentistry studies and acquiring the professional title of a doctor of dental medicine.		

<p>3. Learning outcomes</p>	<p>Through this course students will acquire knowledge about the mechanism of disease emergence, the action of etiological factors, local blood disorders, allergic reactions, metabolic disorders, pathophysiology of blood, cardiovascular system, endocrine system, lung, gastrointestinal system, kidneys and nervous system.</p> <p>1. Module: etiology, etiological factors, pathogenesis</p> <ul style="list-style-type: none"> - Place, role and importance of pathophysiology in medical science and practice, disease and death, reanimation. Etiology and pathogenesis. - Pathophysiology of inflammation and pain - Etiological factors - Effect of changed atmospheric pressure; Disorders of oxygen supply. - Effect of thermal factors of the external environment; Pathophysiology of fever. - Effect of electric current; radiation of the body; - The action of xenobiotics; biological and social-psychic etiological factors The role of the hereditary factor in the onset of the disease. <p>2. Module; Immunity disturbances and local circulatory disorders</p> <ul style="list-style-type: none"> - Immunity disorders and allergic reactions, - Local circulatory disorders, <p>3. Module; Disturbance of metabolism</p> <ul style="list-style-type: none"> - Energy balance disorders; obesity and starvation, - Disturbance of metabolism of carbohydrates, - Disturbance of metabolism of proteins, fats - Disturbance of metabolism of water and electrolytes, <p>4. Module; Disturbed function of blood and blood forming organs</p> <ul style="list-style-type: none"> - Blood function disorder-red blood cell line; - Blood function disorder -white blood cell line; - Disorder of hemostasis. <p>5. Module; Disturbances of cardiovascular system</p> <ul style="list-style-type: none"> - Cardiac decompensation, -Cardiac rhythm disorders, -Disorders of coronary blood flow -Congenital heart diseases -Arterial hypertension -Arterial hypotension <p>6. Module; Pathophysiology of the endocrine system</p> <ul style="list-style-type: none"> - Pathophysiology of endocrinopathy, - Disturbances in secretion of the pituitary gland, thyroid gland, parathyroid glands, adrenal glands, sexual glands. <p>7. Module; Breathing disorders</p> <ul style="list-style-type: none"> - Disturbances of pulmonary ventilation - Respiratory insufficiency - Disorders of non-respiratory pulmonary functions - Pathophysiology of pulmonary edema
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	<p>8. Module; Pathophysiology of the gastrointestinal system</p> <ul style="list-style-type: none"> - Disturbances of motility, digestion and secretion, - Pathophysiology of the pancreas - Disturbances in the function of the liver and gallbladder system <p>9. Module; Disturbances of renal functions</p> <ul style="list-style-type: none"> - Prerenal disturbances of renal functions - Disturbances of glomerular function of kidneys - Renal function insufficiency - Diuresis disorders - Postrenal impairments of renal function <p>10. Module; Pathophysiology of the nervous system</p> <ul style="list-style-type: none"> - Disturbances in neuronal transmission - Corticospinal pathways and extrapyramidal system disorders - Pathophysiology of epilepsy - Disturbances of blood flow, ischemic and hemorrhagic - Disorders of conscience, behavior and memory
<p>4. Learning methods</p>	<p>The course content will be presented in the form of:</p> <ol style="list-style-type: none"> 1. lectures 2. practical exercises
<p>5. Methods of student knowledge assessment</p>	<p>First partial exam</p> <p>This exam is in written form, and consists of 20 MCQ questions. The number of points is multiplied by 1.5, so that the student can score a maximum of 30 points. The exam is passed if the student achieves 55% of the correct answers. The exam takes place in the seventh week after first three modules are processed</p> <p>Second partial exam</p> <p>This exam is in written form, and consists of 30 MCQ questions. The number of points is multiplied by 1.5, so that the student can score a maximum of 45 points. The exam is passed if the student achieves 55% of the correct answers. The exam takes place in the 15th week after modules 4-10</p> <p>Final exam</p>

	<p>This exam is in written form. A student who has passed both partial exams does not have to take the final exam. In case that one of partial exams has been passed, student have to take the other one within the final exam. A student who has not passed any of the partial exams at the final exam has a total of 50 exam questions in a form of MCQ test (two parts, one of 20 questions from the first three modules and another one of 30 questions from the modules 4-10). The number of points is multiplied by 1.5 so the student can have a maximum of 75 points. The exam is passed if the student achieves 55% of the correct answers from both parts. If not, final exam in this form will not be considered as passed.</p> <p>Examination of the practical part Checking the acquired skills through practical exercises will be carried out continuously during the semester through three colloquiums: Colloquium 1 – Functional examination of the cardiovascular system Colloquium 2 – Hematology Colloquium 3 – Respiratory and uropoetic system</p> <p>The total number of points that can be achieved is 25, where colloquiums 1 and 2 are valued by 10 points, and the colloquium 3 by 5 points. The colloquium is considered passed if the student has achieved a minimum of 55% of points (for the first and second colloquium 5.5 points, and for the third, 2.7 points).</p> <p>Final exam: students who did not passed some of the colloquium during the regular course period have to do it through the final exam, where student must score 55% of the maximum number of points for each of the taken colloquiums, in order that the practical exam will be considered as passed.</p> <p>Final grade is formed as follows: 10 (A) - 95-100 points, 9 (B) - 85-94 points, 8 (C) - 75-84 points, 7 (D) - 65 - 74 points, 6 (E) - 55-64 points, 5 (F, FX) - below 55 points.</p>
<p>6. Recommended literature:</p>	<ol style="list-style-type: none"> 1. McPhee SJ, Lingappa VR, Ganong WP. Pathophysiology of disease. An introduction to clinical medicine. New York: Lange MedicalBooks/McGraw Hill; 2014. 2. Mccance LK, Huether ES. Pathophysiology: The Biologic Basis for Disease in Adults & Children. 6th ed. Mosby; 2010. 3. Almir Fajkic. A textbook of practical pathophysiology. Faculty of Medicine. University of Sarajevo. 2018.
<p>7. Exam questions</p>	<p>Exam questions are corresponding to the theoretical and practical topics in the course weekly teaching plan in IV semester.</p>

WEEKLY TEACHING PLAN
IV SEMESTER

Week	Course form and content	Number of classes
Week 1	<p>Lecture:</p> <ol style="list-style-type: none"> 1. Place and role of pathophysiology in medical science and practice. Illness and death. General etiology and pathogenesis. 2. Pathophysiology of inflammation and pain <p>Practical exercise 1</p> <p>Functional testing of the cardiovascular system</p> <p>Tests for the examination of the function of the cardiovascular system - Harvard - Step test, Schellong I, Schellong II</p> <p>Mode of implementation: introductory part, methods of measuring arterial pressure and pulse, performing tests and analyzes of obtained results</p> <p>Exercise objective: getting introduced with the mechanisms of adaptation of the cardiovascular system to fatigue</p>	<p>2</p> <p>2</p> <p>2</p>
Week 2	<p>Lecture:</p> <ol style="list-style-type: none"> 1. The action of thermal factors of the external environment: General hyperthermia, local hyperthermia, General hypothermia, local hypothermia, Pathophysiology of fever. 2. Effect of electric current on the body. Effect of the radiation on the organism; <p>Practical exercise 2</p> <p>Electrocardiography</p> <ul style="list-style-type: none"> - the characteristics of normal electrocardiogram, disturbances of the medium electric axis -impulse generation impairment: nomotopic disorders <p>Mode of implementation: introductory part, recording and analysis of ECG findings</p>	<p>2</p> <p>2</p> <p>2</p>

	Exercise objective: getting to know about the disturbances of the medium electric axis, getting to know with the disturbances in generation of the cardiac impulses	
Week 3	<p>Lecture:</p> <ol style="list-style-type: none"> 1. Effect of xenobiotics 2. Effect of biological, psychological, etiological factors; The role of hereditary factors in the onset of the disease. <p>Practical exercise 3 Electrocardiography. Disturbances in impulse generation: heterotopic disorders</p> <p>Mode of implementation: introductory part, analysis of ECG recordings</p> <p>Exercise objective: getting to know with the impulse generation impairments</p>	<p>2</p> <p>2</p> <p>2</p>
Week 4	<p>Lecture:</p> <ol style="list-style-type: none"> 1. Hypoxia. Action of changed atmospheric pressure: reduced and increased atmospheric pressure. 2. Allergic reaction and disease. Autoimmune diseases of immunodeficiency <p>Practical exercise 4 Electrocardiography. Impulse conduction disorders</p> <p>Mode of implementation: introductory part, analysis of ECG recordings</p> <p>Exercise objective: getting to know with the impulse conduction disorders</p>	<p>2</p> <p>2</p> <p>2</p>
Week 5	<p>Lecture:</p> <ol style="list-style-type: none"> 1. Disorders of the local bloodstream; 2. Disorders of energy balance; hunger, obesity. <p>Practical exercise 5 Electrocardiography: Electrocardiographic characteristics of heart hypertrophy</p> <p>Mode of implementation: introductory part, analysis of ECG recordings,</p>	<p>2</p> <p>2</p> <p>2</p>

	Exercise objective: demonstration of ECG disorders of the atrial and ventricular hypertrophy	
Week 6	<p>Lecture:</p> <p>1. Carbohydrate metabolism disorders. Protein metabolism disorders</p> <p>2. Disorders of metabolism of lipids. Atherosclerosis</p> <p>Practical exercise 6</p> <p>Functional testing of the cardiovascular system Electrocardiography Electrocardiographic characteristics of coronary syndrome</p> <p>Mode of implementation: introductory part, analysis of ECG recordings,</p> <p>Exercise objective: display of ECG disorders of coronary syndrome</p>	<p>2</p> <p>2</p> <p>2</p>
Week 7	<p>Lecture:</p> <p>1. Disturbance of metabolism of water and electrolytes; type and significance of edema. Disorders of calcium and phosphate metabolism</p> <p>2.</p> <p>First partial examination</p> <p>Colloquium 1 - Functional examination of cardiovascular system</p> <p>Practical exercise 7</p> <p>Hemostatic disorders Basic tests of hemostasis: Duke and Ivy bleeding time, coagulation time by Burker, Lee-White, Quick and Howel, capillary resistance test by Rumpel-Leede; painting and counting of platelets</p> <p>Method of implementation: introductory part, practical part, analysis of the obtained results.</p>	<p>2</p> <p>3</p> <p>2</p>

	<p>Exercise objective: getting acquainted with changes in the value of bleeding and coagulation time in hemostatic disorders; determine the number of platelets in the peripheral blood</p>	
Week 8	<p>Lecture:</p> <p>1. Disorders of blood function - red blood cells line - polycythemia and erythrocytosis, anemia; adaptation mechanisms of the organism on anemia.</p> <p>2. Disorders of number of leukocytes, Malignant alteration of lymphopoietic and myelopoietic cells - leukemia. Quantitative and qualitative disorders of the platelets. Hemorrhagic syndrome</p> <p>Practical exercise 8 Red blood cell disorders, Erythrocyte developmental disorders; morphological changes in erythrocytes: shape, color and size. Sedimentation disorders</p> <p>Method of implementation: introductory part, practical part of work, overview of demonstration samples, determination of sedimentation - analysis of the obtained results</p> <p>Exercise objective: to notice qualitative and quantitative changes of peripheral blood erythrocyte, determination of erythrocyte sedation</p>	<p>2</p> <p>2</p> <p>2</p>
Week 9	<p>Lecture:</p> <p>1. Pathophysiology of the cardiovascular system; Hemodynamics in heart congenital disorders; cardiac rhythm disorders; cardiac decompensation</p> <p>2. Pathophysiology of coronary insufficiency, Arterial hypertension and hypotension</p> <p>Practical exercise 9 Anemia: Testing the regenerative ability of blood in anemia. Determination of reticulocyte. Determination of basophilic punctured and polychromatophilic erythrocytes. Laboratory diagnostics of anemia</p> <p>Mode of performance; introductory part, practical part of work, overview of demonstration samples, analysis of the obtained results.</p>	<p>2</p> <p>2</p> <p>2</p>

	Exercise objective: to determine hematological parameters, identify qualitative and quantitative changes of erythrocytes in anemia	
Week 10	<p>Lecture:</p> <p>1. Pathophysiology of endocrinopathies, Disorders of the front and posterior lobe of pituitary gland; Disorder of thyroid gland function</p> <p>2. Disorders of the function of the adrenal gland cortex and medulla. Disorders of parathyroid gland function; Disturbance of endocrine function of testes and ovaries.</p> <p>Practical exercise 10 White blood cell disorders. Leukocyte development disorders. Peripheral blood leukocyte changes. Disorders of differential blood count.</p> <p>Method of implementation: introductory part, practical part, review of demonstration samples</p> <p>Exercise objective: to make a blood smear layer, to determine a differential blood count.</p>	<p>2</p> <p>2</p> <p>2</p>
Week 11	<p>Lecture:</p> <p>1. Pathophysiology of breathing; Ventilation disorders Pulmonary edema pathogenesis</p> <p>2. Pathophysiology of breathing; Pulmonary embolism; pathogenesis of pneumothorax and atelectasis; Disorders of breathing rhythm. Disorders of non-respiratory functions of the lungs. Pulmonary insufficiency</p> <p>Practical exercise 11</p> <p>Malignant diseases of the leukocyte cell line: Acute and chronic leucosis</p> <p>Method of implementation: introductory part, practical part, review of demonstration samples</p> <p>Exercise objective: to notice qualitative and quantitative changes in leukocytes - in acute and chronic leukosis.</p>	<p>2</p> <p>2</p> <p>2</p>

<p>Week 12</p>	<p>Lecture: 1. Pathophysiology of digestion; Acute pancreatitis, chronic pancreatitis. 2. Disorders of the hepatobiliary system; disturbance of biotransformation mechanisms; disruption of blood flow through the liver; portal hypertension; pathogenesis of ascites. Disturbance of the bile secretion.</p> <p>Colloquium 2 – Hematology</p> <p>Practical exercise 12 Spirometry-testing pulmonary ventilation Obstructive and restrictive ventilation disorders</p> <p>Mode of implementation: introductory part, recording of spirograms, analysis of the obtained results analysis of spirometric findings in obstruction and restriction</p> <p>Exercise objective: getting to know with the basics of spirometry</p>	<p>2</p> <p>2</p> <p>2</p>
<p>Week 13</p>	<p>Lecture: 1. Disorders of the glomerular function of the kidney. Nephrotic syndrome. Vascular diseases of the kidneys. Tubulointerstitial kidney diseases. Postrenal causes of renal dysfunction. 2. Acute and chronic renal insufficiency. Diuresis disorders. Urine composition disorders.</p> <p>Practical exercise 13 Functional examination of the uropoetic system Physical and chemical examination of urine. Examination of pathological components of urine sediment.</p> <p>Method of implementation: introductory part, practical part of work, examination of microscopic sediment of urine samples, analysis of obtained results.</p> <p>Exercise objective: Physical and chemical examination of urine, to notice changes in urine sediment.</p>	<p>2</p> <p>2</p> <p>2</p>

Week 14	<p>Lecture:</p> <p>1. Neuronal transmission disorders, disorders of peripheral motoneuron action, disorder of neuromuscular junction. Disorders of the corticospinal pathway. Disturbances of the extrapyramidal system. Pathophysiology of epilepsy.</p> <p>2. Disorder of blood flow within central nervous system; Disturbances of consciousness and behavior; Memory and remembering disorders. Disorders of cerebrospinal fluid.</p> <p>Practical exercise 14 Concentration and dilution disorders; Volhard method; Determination of renal clearance</p> <p>Method of implementation: introductory part, practical part of work and analysis of the obtained results.</p> <p>Exercise objective: to determine renal clearance</p>	<p>2</p> <p>2</p> <p>2</p>
Week 15	<p>Second partial exam</p> <p>Colloquium 3 – Respiratory and uropoetic system</p>	<p>3</p> <p>2</p>
Week 17-18	Final exam	
Week 19-20	Final exam/retake	

Code: SFSOS0304E	Course title: DENTAL MATERIALS		
Level: undergraduate	Year: II	Semester: III	ECTS credits: 5
Status: obligatory			Total classes: 45
Course leader:	Head of department		
Conditions for attending classes: condition are regulated by the rules of study for the Integrated study program of the first and second cycles at the Higher Education Institutions of the University of Sarajevo.			

1. Aims of the Course	<p>-Mastering basic knowledge of dental materials in terms of physical, mechanical, chemical and biological properties.</p> <p>-Obtaining certain precepts for the proper and purposeful use of dental materials and technologies in clinical work.</p> <ul style="list-style-type: none"> - Providing basic knowledge for critical evaluation and comparison of commercially available dental materials, and making decisions on how to use them properly. - Teaching students how to inform patients about the characteristics of the materials for the purpose of enabling them to make a proper choice.
2. Purpose of the Course	<p>-The purpose of the course is to inform students about the basic mechanical, physical, chemical and biological properties of dental materials, which is a precondition for proper selection and adequate manipulation of materials in dental practice.</p> <p>-The course includes a historical review of dental materials, their standardisation, structure and properties. The subject informs students about dental materials in different branches of dentistry as well as with their clinical application.</p> <p>-The program of the course encourages the ability to analyse each material and accordingly select the best material for each clinical case. Students are also introduced to the characteristics and the way in which each material reacts, including the reasons for the consistent compliance with the handling and use instructions.</p>
3. Learning outcomes:	<p>-The student fully masters the knowledge of the physical, chemical and biological properties of dental materials. Based on the acquired knowledge, the student gains the basic idea about the importance of proper selection and purposeful use of dental materials.</p> <p>-The student has acquired basic knowledge of all groups of dental materials and is able to critically evaluate and compare the commercially available dental materials.</p>
4. Learning methods:	Lecture; Seminars
5. Evaluation methods	<p>The acquired knowledge and skills are tested continually during the semester. Students sit exam, which is compiled for each exam term, divided into A and B groups (if necessary, C and D groups). The exam is awarded points only if it has a score of at least 55% of correct answers.</p>

Scale and method of evaluation:

-50 points (50%) for activities and tests during the semester

- 40 points (40%) partial exam

- 10 points (10%) for attendance and other activities.

The total sum of points is 100.

Rating scale evaluation:

10 (A) 95-100 Excellent without mistakes or with minor mistakes

	<p>9 (B) 85-94 Above the average, with some mistakes</p> <p>8 (C) 75-84 Average with noticeable mistakes</p> <p>7 (D) 65-74 Generally good, but with significant mistakes</p> <p>6 (E) 55-64 Satisfies the minimum criteria 5 (F)</p> <p><55 Does not satisfy the minimum criteria</p>
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6.Literature:	<p>Obligatory:</p> <ol style="list-style-type: none"> 1. Craig R. Dental Materials. Mosby, St. Louis, USA, 1992. 2. Craig RG, Powers JM, Wataha JC. Dental Materials – Properties and Manipulation. Mosby, St. Louis, USA 2000. 3. McCabe JF, Walls AWG. Applied Dental Materials. Blackwell Publishing. Oxford, UK, 2008 4. Roberson tm, Heymann HO, Swift EJ. Sturdevant's Art & Science of Operative Dentistry. Mosby, St. Louis, USA, 2002. <p>Additional:</p> <ol style="list-style-type: none"> 1. Jerolimov V. isar. Stomatološkimaterijali. Zagreb: Stomatološkifakultet, 2005. (www. sfzg.hr.) 2. Stamenković D. isar. Stomatološkimaterijali. Beograd: Zavod za udžbenike i nastavna sredstva, 2003. 3. Šutalo J. Kompozitnimaterijali u stomatologiji. Zagreb: Grafičkizavod Hrvatske, 1998. 4. Šutalo J. I sar. Patologija i terapija tvrdih zubnih tkiva. Zagreb: Naklada Zadro, 1994. <p>Extended:</p> <ol style="list-style-type: none"> 1. Vujašević Lj, Trifunović D, Kosovčević M, Kandić M. Stomatološka protetika – pretklinika, Beograd: Univerzitet u Beogradu, 1979. 2. Suvin M. Djelomična proteza. Školska knjiga, Zagreb, 1980. 3. Suvin M. Fiksna protetika. Školska knjiga, Zagreb, 1990. 4. Tahmišćija H isar. Preventiva u dječjoj stomatologiji. I.P. Svjetlost, Sarajevo, 1998. <p>5. Beganović M. Pretklinička protetika – parcijalna proteza, navlake i mostovi. Univerzitet u Sarajevu, Stomatološkifakultet, 1982.</p>
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Week	Form of teaching and materials	Number hours
Week 1.	<p>Lecture: Introduction to the necessity of studying dental materials. Historical use of dental materials.</p> <p>Exercises:</p> <p>Seminars:</p>	<p>3</p> <p>0</p>

Week 6.	<p>Lecture: Dental investment materials. Requirements of an investment. Classification and chemistry composition. Physicalmechanical properties and purpose</p> <p>Exercises: Seminars:</p>	3
Week 7.	<p>Lecture: Metallic elements used in dental alloys. Dental alloys. Requirements, classification, properties dental alloys. Clinical application of noble and base metal alloys in dentistry.</p> <p>Exercises: Seminars:</p>	3 0
Week 8.	<p>Lecture: Dental ceramics. History of dental ceramic. Classifications of dental ceramics. Composition and properties of dental ceramic. Sintering of dental ceramic. Ceramic processing methods Metal-ceramic restorations and all ceramic restorations.</p> <p>Exercises: Seminars:</p>	3 0
Week 9.	<p>Lecture: Polymers in Dentistry. Polymers for denture base - Denture base resins. Classifications of Polymers. Composition and physical properties of denture base resin. Polymerization procedure. <i>Resin-bonded metal restorations.</i></p> <p>Exercises: Seminars:</p>	3 0
Week 10.	<p>Lecture: Restorative materials Dental amalgams. History of dental amalgams. Composition and function of certain metals in the composition of dental amalgam. Mechanical properties and dimensional stability of dental amalgams. Clinical manipulation. Biocompatibility of dental amalgams</p> <p>Exercises: Seminars:</p>	3 0

Week 11.	<p>Lecture: Direct aesthetic restorative materials –Dental composites. History of dental composites. Composition and function of structural components of composite materials. Classification of dental composite. Curing of dental composites.</p> <p>Exercises: Seminars:</p>	3 0
Week 12.	<p>Lecture: Dentine adhesives. Mechanisms of adhesion. Dentin bonding agents. Hybrid layer.</p> <p>Exercises: Seminars:</p>	3 0
Week 13.	<p>Lecture: Dental Cements - Properties and Classification. Cements as luting agents. Cements for temporary restorations. Agents for pulp protection.</p> <p>Exercises: Seminars:</p>	3 0
Week 14.	<p>Lecture: Materials in preventative dentistry- fluoride. Physical-chemical properties of fluoride. Mechanism of action of fluoride in caries prevention. Methods of applications fluoride (topical, systemic)</p> <p>Exercises: Seminars:</p>	3 0
Week 15.	<p>Lecture: Abrasive materials. Types of abrasives. Finishing and polishing materials. Benefits of finishing and polishing of dental materials.Laboratory Materials</p> <p>Exercises: Seminars:</p>	3 0
Week 17. -18.	Final exam	
Week 19.-20.	Remedial exam	

* One seminar is planned with the implementation plan. Students will present seminar during the semester, in groups of five to ten students in terms of agreement with teacher and assistants.

Code: SFSOS0403E	Course title: GNATHOLOGY		
Level: undergraduate	Year:II	Semester: IV	ECTS credits: 6
Status: obligatory			Total classes: 45 (15+30)
Course leader:	Head of the Department		
Prerequisites for course attendance are regulated by the Rules of Studies for the Integrated Study Program of the first and second cycles in establishments of higher education at Sarajevo University			
1.Aims of the course	The aim of the course is to teach students basic theoretical and practical knowledge of gnathology		
2.Purpose of the course	Students are to get familiarized with and acquire knowledge of complex relationships between components of the stomatognathic system in rest and during function which are applicable for all dental procedures. Occlusal diagnostics and treatment plan for occlusal disorders are based upon the basic principles of achieving and maintaining occlusal equilibration. Students are also to get familiarized with and modern gnathologic techniques, select and use articulators.		
3. Learning outcomes	<p>After attending lectures and passing the exam students are able to :</p> <ul style="list-style-type: none"> - acquire basic concepts of occlusion, understand physiology and determinants of mandible movement - master methodology of the analysis of movement and mandible position as well as occlusal relationship in centric and eccentric mandibular positions - use average-value articulators and get familiarized with the potential of semi-adjustable articulators - master the technique of registering reference positions of the lower jaw - master the transfer technique of the upper and lower jaw cast into the articulator - master the principles of reconstruction intervention planning according to valid occlusion concepts 		
4. Learning methods	<ul style="list-style-type: none"> - ex-catedra lectures (L) for all students - practical exercises - written exercises 		
5. Evaluation methods	<p>Students are required to meet all the requirements prior to sitting the exam. The maximum score is 100 points. At this, 50% of points is awarded for a successful completion of pre-exam tasks while the final exam is awarded 50% of points.</p> <p>Acquired knowledge and skills are tested continually during the course</p>		

Within the total point score, 50% * of points is envisaged for activities and test during the semester: 40 % * of points for the mid-term test and 10 % * of points for attendance and other activities (2 points for attendance at classes, 4 points for attendance at practical exercises and 4 points for activity in practical exercises). The final exam is awarded maximum 50% *of points.

As a rule, the mid-term test is given in a written form and taken in the week 8. of the semester.

The final exam is given in a test form which is compiled for each exam term. Students sit the exam divided into A and B groups (if necessary, into C and D groups).

The final exam can be awarded points only if the student achieves at least 55% of correct answers in exam.

In accordance with the above, the grade scale is as follows:

Grade	ECTS points	Grade description
10 (A)	95 - 100	excellent without errors or with minor errors
9 (B)	85 – 94	above average, with a few errors
8 (C)	75 – 84	average, with noticeable errors
7 (D)	65 – 74	generally good, but with significant flaws
6 (E)	55 – 64	satisfies the minimal criteria
5 (F)	< 55	does not satisfy the minimal criteria

* % = points

- All the exam questions need not be awarded the equal number of points. Decision on point scoring is made by the course leader before the exam.

6. Literature:

Required literature :

1. Okeson PJ. Management of temporomandibular disorders and occlusion.6th Mosby,2006.
2. Ramfjord S.P. Assh M.M. Occlusion, 3 rd ed., Saunders, Philadelphia, 1983.
3. Dawson PE. Functional Occlusion: From TMJ to Smile Design. St.Louis: Mosby; 2007.

Week	Course load	Number of hours
Week 1.	<p>Lecture topic:</p> <ul style="list-style-type: none"> - Introduction to gnathology; definition, field of study, aims, history - Stomatognathic system; components, functions of the system- functional unity <p>Exercises: Taking of anatomic impression of the lower jaw with a complete set of teeth on dummies and cast making.</p>	<p>1</p> <p>2</p>
Week 2.	<p>Lecture:</p> <ul style="list-style-type: none"> - Anatomic foundations from the gnathologic perspective - Craniomandibular joint connection (ATM) – anatomic and functional specifics of joint in relation to gnathologic concept <p>Exercises: Taking of anatomic impression of the upper jaw with a complete set of teeth on dummies and cast making.</p>	<p>1</p> <p>2</p>
Week 3.	<p>Lecture:</p> <p>Muscles of the stomatognathic system from the gnathologic perspective</p> <ul style="list-style-type: none"> - masticatory muscles - mimic muscles - tongue and neck muscles - blood veins and muscles of the upper and lower jaws <p>Exercises: Reference points, lines, planes (Frankfurt plane, Spee’s curve, Monson’s curve, Camper’s line, occlusal plane, prosthetic plane). Cast analysis, analysis of the morphology of dental arches, horizontal and vertical overlap.</p>	<p>1</p> <p>2</p>
Week 4.	<p>Lecture:</p> <p>Reference positions of the lower jaw</p> <ul style="list-style-type: none"> - physiologic rest position(FR) of the lower jaw, mechanisms which keep the mandible in rest position, factors which impact on the rest position, free interocclusal space, clinically and electromiographically determined rest position (FR) - centric relation (CR), definition, position of condyles and muscles in CR position, centric relation and hinge movement, CR to maximum intercuspation slide 	<p>1</p>

	<p>- maximum intercuspation (MI or Ikp), occlusal relationship of the teeth at maximum intercuspation, relationship of the anterior teeth at maximum intercuspation.</p> <p>Exercises: Centric relation and position of maximum intercuspation, analysis of maxillomandibular relationships.</p>	2
Week 5.	<p>Lecture: Articulators</p> <ul style="list-style-type: none"> - components, selection, classification - classification of articulators according to condyle mechanism position, transfer of a cast into the articulator without a facebow <p>Exercises: Types of articulator, components of articulator, work with an average-value articulator (cast transfer into the articulator)</p>	1 2
Week 6.	<p>Lecture: Biostatics of occlusion</p> <ul style="list-style-type: none"> - functional anatomy of occlusal surfaces - interrelationship of the maxillary and mandibular dental arches at maximum intercuspation - periodontal organ from gnathologic perspective - masticatory pressure (physiologic transfer on the periodontium, face and head bones) <p>Exercises: Analysis of occlusal surfaces Marking (registering) of :</p> <ul style="list-style-type: none"> - cusp top <li style="padding-left: 20px;">-cusp basis - central fissure - mesial and distal marginal ridge - triangular cusp surfaces 	1 2
Week 7.	<p>Lecture: Biostatics of stomatognathic system</p> <ul style="list-style-type: none"> - impact of the oral cavity forces on the position of teeth in a set of teeth - didactic presentation of the system biostatics - occlusion : definition, basic concepts, occlusion terminology - static and dynamic occlusion (occlusion concepts) <p>Exercises: Analysis of occlusion on casts in articulator (in Ikp) -relationship of the anterior and lateral teeth in Ikp (anteriorposterior, bucco lingual), centric occlusal contacts. Recommendations for this practical exercise, analysis on gnathologic casts</p>	1 2

Week 13.	Lecture: Physiologic regulation of jaw movements Nerves and nerve synapses, nerve synapse, neuromuscular connection, generation of action potential and stimulus transfer through nerve tissues, receptors - function specifics of particular receptors, receptor potential, reception of stimuli in the stomatognathic system, proprioception – deep sensibility, muscle spin, Golgi’s tendon organs, mechanic receptors of the periodontium, neuromuscle feedback	1
	Exercises: Modelling of occlusal morphology according to P.K. Tomas	2
Week 14.	Lecture: Centric regulation of jaw movements Cerebrum cortex, role of basal ganglions, role of cerebellum, nucleus of cranial nerves, reflexes of the stomatognathic system, elements of the reflex pathway, monosynaptic and polysynaptic reflexes, mouth closure reflex, mouth opening reflex, linguohypoglossal reflex	1
	Exercises: Modelling of occlusal morphology according to P.K. Tomas	2
Week 15.	Lecture: Features of non physiologic occlusion - impact of occlusion on the orthopedic stability of the temporomandibular joint (TMJ) - impact of occlusal interferences on muscle activity - primary and secondary traumatic occlusion, consequences of traumatic occlusion	1
	Exercises: Modelling of occlusal morphology according to P.K. Tomas	2
Weeks 17.-18.	Final exam	
Weeks 19.-20.	Remedial final exam	

SECOND YEAR ELECTIVE COURSES

Code: SFSIO0305E	COURSE TITLE: ENGLISH LANGUAGE IN DENTISTRY II		
Level of study: undergraduate	Year: II	Semester: III	ECTS credits: 6
Course status: elective		Total classes: 60	
Professor in charge:			

Entry requirements: entry requirements correspond to the legal regulations of studying in University of Sarajevo

<p>1. Course objectives:</p>	<p>Understanding of professional texts in the field of dentistry with the objective that students realize that language which they learn has also a different purpose, not just communicational. At this stage, the original texts from dentistry, summaries from the abstract books of congresses and conferences are used. Students are preparing for independent presentations as well as for self-writing of abstracts and scientific articles.</p>
<p>2. Course purpose:</p>	<p>Determination of the basic vocabulary, determination and repetition of grammatical structures, the adoption of pronouncements of English words coming directly from Latin or Greek language, defining the meaning of suffixes and prefixes, discussing professional themes, practicing writing abstracts and biography. Functional: developing the ability to conclude and think, developing the ability to express themselves independently, and the ability to apply acquired knowledge. Educational: achieving communication and interaction, achieving motivation for speaking in English language.</p>
<p>3. Learning outcomes:</p>	<p>Students are trained to use four language skills - speaking, listening, reading and writing in those areas of dental science that are scheduled by the curriculum of the first academic year. Without major difficulties, they can:</p> <ul style="list-style-type: none"> - participate in oral communication with colleagues, students, dentists, lecturers; - make presentations related to the prescribed course content; - follow lectures in English language and actively participate in them; - read the professional literature with understanding, quickly finding the relevant information in the text; - participate in formal and informal written communication, and compile abstracts and reports
<p>4. Learning methods:</p>	<p>Lectures, language practical exercises.</p>
<p>5. Methods for student knowledge assessment</p>	<p>Continuous oral and written examinations, tests, discussions, oral presentations, portfolio of written papers, written final exam. Final grade is formed as follows:</p>
	<p>10 (A) - 95-100 points; 9 (B) - 85-94 points; 8 (C) - 75-84 points; 7 (D) - 65-74 points; 6 (E) - 55-64 points; 5 (F, FX) - under 55 points.</p>

6. Recommended literature	1. Štefić L. English in Dentistry I. Zagreb: Stomatološki fakultet Sveučilišta u Zagrebu; 1998.
7. Exam questions and weekly teaching plan	Exam questions and weekly teaching plan are corresponding to the course learning outcomes and knowledge assessment methods.

Code: SFSIS0404E	COURSE TITLE: LEGAL ASPECTS OF DENTAL PRACTICE		
Level: undergraduate	Year: II	Semester: IV	ECTS credits: 6
Status: Optional			Total classes: 45 (30+15)
Head of the course: Head of the Department			
1. Objectives of the course	Understanding the meaning and role of legislation in dentistry in order to protect the rights of dentists and patients' rights. Introduction to legal legislation regulating dental practice. Understanding the existing legal sanctions in cases of negligent, arbitrary treatment and lack of medical help		
2. Purpose of the course	The purpose of the course is to accept the basic criteria of medical deontology and legal responsibilities of health professionals, in particular dental practitioners		
3. Learning outcomes	<p>During the course Legal Aspects of Dental Practice the student will adopt the following knowledge:</p> <p>Human rights and medical law and the legal nature of the relationship doctor of dental medicine – patient</p> <p>Application of the legislation that regulates the performance of dental service</p>		

	<p>Basic rights, duties and responsibilities of the patient</p> <p>The rights and obligations of a dental practitioner in the exercise of his profession</p> <p>Criminal liability of the doctor of dental medicine (disciplinary, criminal, civil-legal)</p> <p>The skills that a student needs to adopt</p> <ol style="list-style-type: none"> 1. Finding sources in the field of medical law 2. Proper use of essential sources of medical law (laws, rules and other documents) 3. The method of protecting the rights of the dentist through communication with relevant entities and institutions (chambers, courts, insurance companies)
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	<p>After attending classes, the student should adopt the following attitudes:</p> <ol style="list-style-type: none"> 1. Dental practice is regulated by law. 2. Doctor of dental medicine must practice in accordance with valid legislation of the country 3. Doctor of dental medicine must know his / her legal rights 4. Doctor of dental medicine must know the rights of the patient
4.Learning methods	Interactive lectures and practical exercises: work in small groups, simulation of cases from practice, finding sources in the field of medical law
5. Knowledge Assessment Methods	<p>The assessment contains the following elements:</p> <ul style="list-style-type: none"> - Regular attendance at lectures is a minimum of 3 and maximum of 5 points. Regular attendance in exercises is a minimum of 3 and a maximum of 5 points. - The first partial exam (organized in the 8th week of semester) is in written form and contains a practical assignment, MCQ and essay questions, and carry a minimum score of 20 and a maximum score of 30 points. It is considered completed as having at least 60% of correctly answered questions. - The second partial exam (organized in the 15th week of semester) is in written form and contains a practical assignment, MCQ and essay

	<p>questions, with a minimum of 29 points and a maximum of 60. It is considered completed as having at least 60% of correctly answered questions.</p> <p>- Final examination for students who did not meet partial exams or are not satisfied with the grade is organized in the 17th week of semester. Upon completion of the semester, the student can win a maximum of 100 points. The total number of points scored is translated into the final score:</p> <p>10 (A) outstanding, without fail or with minor errors 95-100 9 (B) above the average, with occasional errors 94-85 8 (C) average, with noticeable errors 75-84 7 (D) generally good, but with significant deficiencies 74-65 6 (E) meets the minimum criteria 55-64 5 (F, FX) does not meet the minimum criteria <55</p> <p>5 (FX) does not meet the minimum criteria <50</p>
6. Literature :	<p>Mandatory: Authorized lectures - handout</p> <p>Smajkić A. Nikšić D; Bahtijarevic R. Human rights to life, Health and Social Existence in Bosnia and Herzegovina Focus-medical d.d. Sarajevo, 2004.</p> <p>Expanded: legal provisions in FBiH (FBiH Law on Health Care, FBiH Criminal Law, FBiH Law on Dental Practice, Law on Rights, Obligations and Obligations of FBiH Patients, Law on Records in the Field of Health FBiH ..., Dental Chambers Rules, Codes and Regulations health institutions, etc.). Selected articles - Masić I. Medical deontology - principles and practice in Bosnia and Herzegovina <i>Materia Socio Medica</i> Vol. 20; No.1.2008. ...</p>

Week	Form of teaching and materials LEGAL ASPECTS OF DENTAL PRACTICE	Number of hours
Week 1	Lecture: The importance of knowing medical rights for health workers	2
	Exercises *	1
Week 2.	Lecture: European Convention for the Protection of Human Rights and Fundamental Freedoms; Right to the highest possible standard of health (European and World Convention on the Protection of the Rights of Health Beneficiaries)	2
	Exercises *	1
Week 3.	Lecture: Legal legislation regulating dental practice in FBiH: FBiH Law on Health Care, FBiH Law on Dental Medicine, Law on Rights,	2

	Obligations and Obligations of Patients in FBiH, Law on Records in the Field of Health FBiH ..., Exercises *	1
Week 4.	Lecture: Bylaws and internal legal documents in health institutions and health inspectorates Exercises *	2 1
Week 5.	Lecture: Legal nature of the relationship doctor of dental medicine - patient; The partner model of the relationship of a dentist patient to a patient Exercises *	2 1
Week 6.	Lecture: Basic patient rights: right to information, the right to consent / refuse treatment, the right to access documentation, the right to choose a doctor, the right to protect medical data Exercises *	2 1
Week 7.	Lecture: Informed consent of the patient: ethical, legal and clinical dimension Exercises *	2 1
Week 8	Lectures: Failure to provide medical assistance, medical error and dentist's negligence Exercises * First partial exam!	2 1
Week 9.	Lecture: Types and Significance of Dental Documents Exercises *	2 1
Week10.	Lecture Civil law responsibility of dental doctors. Compensation for damage caused to the patient by unauthorized treatment Exercises *	2 1
Week 11.	Lecture: The responsibilities of the dentist in terms of team work (doctor of dentl medicine is responsible for the work of their associates) Exercises *	2 1
Week 12.	Lecture: Special cases of the responsibility of doctors of dental medicine and team members (diagnostic errors, spread of infections, aesthetic procedures, performing unnecessary treatments) Exercises *	2 1

Week 13.	Lecture: Principles of protection against complaints and complaints of patients Exercises *	2 1
Week 14.	Lecture: Dilemmas of the Doctor of Dental Medicine between ethical principles and legal regulations Exercises *	2 1
Week 15.	Lecture: Role and Significance of Dental Documents in Judicial-Medical Examination Exercises *	2 1
Week 17.	Final exam	
Week 1820	Exam-the second term	

* Exercises: During practical training applies simulation, analysis and discussion of case studies and finding the laws and regulations governing health care activities. Through practical work on the exercises, the whole theoretical content of the subject was processed

Code: SFSIO0405E	COURSE TITLE: DATA PROCESSING IN DENTISTRY		
Level of study: undergraduate	Year: II	Semester: IV	ECTS credits: 3
Course status: elective		Total classes: 45	
Professor in charge:			
Entry requirements: entry requirements correspond to the legal regulations of studying in University of Sarajevo			

1. Course objectives:	The objective of the course is that students through theoretical and practical work overwhelm the practical application of all previously acquired knowledge in informatics, and the ways of data processing in information systems.
2. Course purpose:	The purpose of the course is to enable students to overwhelm data processing in the field of dentistry through their theoretical and practical work accomplished thorough this course content.
3. Learning outcomes:	<p>Students will acquire the following knowledge and skills:</p> <ol style="list-style-type: none"> 1. Identification of possible units and types of data and basic data operations 2. Learn about the possible applications of data processing for scientific and commercial purposes 3. Learn about methods of data collection, data input, data processing and data processing elements 4. Learn about the usual models and methods of modeling, statistical analysis of data, organization and presentation of data 5. Reporting and graphic representation and visualization of data processing results of the system 6. Learn what are the threats, vulnerabilities and risks of data security, and the ways in which these risks can be managed 7. Acquire practical knowledge in the field of database management which includes database creation, tables, data manipulation, creation of forms for data entry, and creation of reports. 8. Practical work with the MS Access tool
4. Learning methods:	<p>Teaching takes place in the form of:</p> <ul style="list-style-type: none"> - lectures - practical exercises
5. Methods for student knowledge assessment	<p>The final knowledge assessment will be carried out by a test that will include questions from all dental disciplines where practical exercises are processed, in a proportion according to the number of classes. The final exam is passed if the student gives at least 55% correct answers to the questions. A student can score a maximum of 100 points.</p> <p>Final grade is formed as follows:</p> <p>10 (A) - 95-100 points; 9 (B) - 85-94 points;</p>
	<p>8 (C) - 75-84 points; 7 (D) - 65-74 points; 6 (E) - 55-64 points; 5 (F, FX) - under 55 points.</p>

6. Recommended literature	<ol style="list-style-type: none"> 1. lectures handouts 2. Fry B. Visualizing Data: Exploring and Explaining Data with the Processing Environment. O'Reilly Media; 2008 3. Wu MS. Introduction to Computer Data Processing. Harcourt College Pub; 1979. 4. Roman S. Access Database Design & Programming. 3rd Edition. O'Reilly Media; 2009. 5. Whitehorn M, Marklyn B. Accessible Access 2003. Springer; 2005.
7. Exam questions and weekly teaching plan	<p>Exam questions and weekly teaching plan are corresponding to the course learning outcomes and knowledge assessment methods.</p>

Code: SFSIS0406E	Course title: MANAGEMENT IN DENTISTRY		
Level: Undergraduate	Year: II	Semester: IV	ECTS credits : 6
Status: Optional			Total classes: 60 (45+15)
Responsible teacher:	Head of Department		
Conditions for attending to lectures are in relation with the rules for the first level of studying in the high educational system in University of Sarajevo			
1. Objectives	<ul style="list-style-type: none"> - Accept basic knowledge about management, marketing and business administration; - Allow understanding managements' role in everyday dental practice as well as managing the dental office; - Acquiring the basic knowing about economic and financial aspects in managing of dental facility?; - An explanation of the ethics dilemma which follow managing and marketing in dentistry; - Understanding the importance of service planning and follow quality standards in the health system as well; 		
2. Purpose of Course	Providing the basic information about management as well as marketing which are applicable in dentistry;		
3. Outcomes	<p>Student would be able:</p> <ul style="list-style-type: none"> - to know an explanation of the basic terms in management (efficiency, effectiveness, strategic planning, human resources); - to master the basis of the process in the business of the dental office - to master the basics of marketing needed to complete the dentistry service. 		
4. Teaching methods	Interactive lectures and simulations		
5. Assessment methods	<p>The assessment contains the following elements:</p> <ul style="list-style-type: none"> - Regular attendance at lectures is a minimum of 3 and maximum of 5 points. Regular attendance in exercises is a minimum of 3 and a maximum of 5 points. - The first partial exam (organized in the 8th week of semester) is in written form and contains MCQ and essay questions, and carry a minimum score of 20 and a maximum score of 30 points. It is considered completed as having at least 60% of correctly answered questions. - The second partial exam (organized in the 15th week of semester) is in written form and contains MCQ and essay questions, with a minimum of 29 points and a maximum of 60. 		

	<p>It is considered completed as having at least 60% of correctly answered questions.</p> <ul style="list-style-type: none"> - Final examination for students who did not meet partial exams or are not satisfied with the grade is organized in the 17th week of semester. <p>Upon completion of the semester, the student can win a maximum of 100 points. The total number of points scored is translated into the final score:</p> <p>10 (A) outstanding, without fail or with minor errors 95-100 9 (B) above the average, with occasional errors 94-85 8 (C) average, with noticeable errors 75-84 7 (D) generally good, but with significant deficiencies 74-65 6 (E) meets the minimum criteria 55-64 5 (F, FX) does not meet the minimum criteria <55 5 (FX) does not meet the minimum criteria <50</p>
<p>6. References:</p> <p>Obligatory: Authorized lectures - handout</p> <p>Additional: Key Texts and/or other learning materials</p>	

Week	Teaching methods	Number
Week 1.	<p>Lecture: Management- definition, hystory, basics and funktions of management.</p> <p>Practice: Simulation</p> <p>Seminarian work: *</p>	3 1
Week 2.	<p>Lecture: Organisation types in dentistry- simple, complex (professional) and innovative. Practice: Simulation</p> <p>Seminarian work: *</p>	3 1
Week 3.	<p>Lecture: Products and services management in dentistry.</p> <p>Practice: Simulation</p> <p>Seminarian work: *</p>	3 1
Week 4.	<p>Lecture: Marketing management services in dentistry.</p> <p>Practice: Simulation</p> <p>Seminarian work: *</p>	3 1
Week 5.	<p>Lecture: Ethical and legal aspects of dentistry marketing.</p> <p>Praktice: Simulation</p> <p>Seminarian work: *</p>	3 1
Week 6.	<p>Lecture: Strategic and operational planning of marketing management in dentistry.</p> <p>Practice: Simulation</p> <p>Seminarian work: *</p>	3 1
Week 7.	<p>Lecture: Organisation of business process in dentistry.</p> <p>Practice: Simulation</p> <p>Seminarian work:*</p>	3 1

Week 8.	Lecture: Economics and the financing of dental facilities. Practice: Simulation Seminarian work: *	3 1
Week 9.	Lecture: Enterprise in dentistry- management of the dental office. Practice: Simulation Seminarian work: *	3 1
Week 10.	Lecture: Innovative management, teamwork and motivation in dentistry Practice: Simulation Seminarian work:	3 1
Week 11.	Lecture: Managing the quality of dental health protection. Practice: Simulation Seminarian work: *	3 1
Week 12.	Lecture: Project management, management of time Practice: Simulation Seminarian work:*	3 1
Week 13.	Lecture: Information technologies, multimedia communications and PR in dentistry. Practice: Simulation Seminarian work: *	3 1
Week 14.	Lecture: Human resource management: dental team in relation to procedure Practice: Simulation Seminarian work: *	3 1
Week 15.	Predavanje: Leadership in dentistry Practice: Simulation Seminarian work: *	3 1
Week 17.	Final exam	
Week 18-20.	Exam- the second term	

THIRD YEAR COMPULSORY COURSES

Code: SFSOS0501E	Course title: PRECLINICAL PROSTHODONTICS		
Level: Undergraduate	Year: III	Semester: V and VI	Total ECTS credits: 9
Status: Obligatory			Total classes: 120 (30+90)
Course leader:	Head of the Department		
<p>Conditions for attending classes: The requirements are regulated by the Study Rules for the Integrated study program of the first and second cycle at the higher education institutions of the University of Sarajevo.</p>			
<p>Semester: V Preclinical Removable Prosthodontics</p>			
1. Goal of the course	Goal of Preclinical Removable Prosthodontics is the acquisition of basic theoretical and practical knowledge on technical and technological procedures for making removable dental prostheses.		
2. The purpose of the course	The purpose of Preclinical Removable Prosthodontics is to enable students to master basic theoretical and practical knowledge about laboratory procedures for making removable dental prostheses.		

3. Learning outcomes	<p>After completing lectures and passing the exam from Preclinical Removable Prosthodontics, the student will have theoretical knowledge of all laboratory procedures in the making of removable dental prostheses.</p> <p>After preclinical practicals, the student will be trained to perform independently:</p> <ul style="list-style-type: none"> - Making preliminary (anatomical) impressions of the phantom head - Pouring and analysis of preliminary casts - Fabrication of custom tray - Beading and boxing of final (functional) impression, pouring the master cast - Fabrication of record bases and wax occlusion rims - Mounting the master casts on an articulator - Setting of anterior and posterior artificial teeth <p>The student will through preclinical practicals be introduced to laboratory procedures of waxing, flasking, packing, pressing, polymerization, deflasking, finishing and polishing of complete dentures.</p>
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	<p>The student should master the making of wire clasps, the fabrication of bite rims, the setting of artificial teeth, the analysis of the model in the dental parallelometer, the planning of all parts of the partial denture on the model. The student will be introduced to laboratory procedures for fabrication of cast removable partial denture.</p> <p>The student will be introduced to laboratory procedures for relining and repairs of complete and partial dentures.</p>
4. Study methods	<p>Classes are in the form of :</p> <ul style="list-style-type: none"> - lectures ex cathedra (L) for all students and - preclinical practicals

5. Evaluation methods	<p>At the end of the course the student can acquire a total of 100 points.</p> <p>Within the total point score, the student can acquire a maximum of 50 points during each semester for attendance, activity and partial exam:</p> <ul style="list-style-type: none"> - lecture attendance - 2 points, - attendance and activity in practical exercises - 2 points - partial exam - 46 points <p>The partial exam will be held in the 15th week in both semesters. Students sit the partial exam in the form of a test, which is compiled for each exam term, divided into A and B groups (if necessary, C and D groups).</p> <p>The partial exam is awarded points only if it has a score of at least 55% of correct answers. Each exam question need not be awarded the equal number of points.</p> <p>The points that the student acquires in both semesters together make the final grade.</p> <p>According to the aforementioned, the scale is as follows:</p> <table border="1" data-bbox="528 994 1430 1525"> <thead> <tr> <th>Grade</th> <th>Points</th> <th>Grade description</th> </tr> </thead> <tbody> <tr> <td>10 (A)</td> <td>95 - 100</td> <td>Exquisite success without error or with minor errors</td> </tr> <tr> <td>9 (B)</td> <td>85 – 94</td> <td>above average, with some mistakes</td> </tr> <tr> <td>8 (C)</td> <td>75 – 84</td> <td>average, with noticeable errors</td> </tr> <tr> <td>7 (D)</td> <td>65 – 74</td> <td>generally good, but with significant shortcomings</td> </tr> <tr> <td>6 (E)</td> <td>55 – 64</td> <td>meets the minimum criteria</td> </tr> </tbody> </table>	Grade	Points	Grade description	10 (A)	95 - 100	Exquisite success without error or with minor errors	9 (B)	85 – 94	above average, with some mistakes	8 (C)	75 – 84	average, with noticeable errors	7 (D)	65 – 74	generally good, but with significant shortcomings	6 (E)	55 – 64	meets the minimum criteria
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6 (E)	55 – 64	meets the minimum criteria																	

	5 (F)	< 55	does not meet the minimum criteria
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	<ul style="list-style-type: none"> • The final exam will be held in the 17-18 th week at the end of the course for students who have not passed the first and/or the second partial exam. • The remedial exam will be held in the 19-20 th week at the end of the course for students who have not passed the first and/or the second partial exam. • In addition, remedial exams are also held in September.
<p>6. Literature:</p> <p>Recommended literature:</p> <ul style="list-style-type: none"> • <u>Rahn AO, Ivanhoe JR, Plummer KD</u>. Textbook of Complete Dentures. 6th Edition. People’s Medical Publishing House; 2009. • Prajapati P, Kulkarni S. Essential Manual of Preclinical Prosthodontics. 1st Edition. Jaypee Brothers Medical Publishers (P) Ltd; 2019. • Lakshmi S. Preclinical Manual of Prosthodontics. 2nd Edition. Elsevier India; 2014. • Moghadam M, Moghadam B, Jahangiri L. Manual for Preclinical Removable Prosthodontics: Complete Dentures. <i>MedEdPORTAL</i>.2009;5:1710. https://doi.org/10.15766/mep_2374-8265.1710 • Carr AB, Brown DT. McCracken's Removable Partial Prosthodontics. 12thEdition. Mosby, Inc. Elsevier; 2011. • Phoenix RD, Cagna DR,DeFreest CF. Stewart's Clinical Removable Partial Prosthodontics. 4th Edition. Quintessence Publishing Co,Inc; 2008. • Trifunović D M,Radlović S,Kandić M,Nastić M,Petrović A,Krstić M,StanišićSinobaD. Stomatološkaprozetikapredklinika.Beograd:Zavodzaudžbenikeinastavnasredstva;2003. 	
<p>Semester:VI</p> <p>Preclinical Fixed Prosthodontics</p>	
<p>1. Goal of the course</p>	<p>Acquiring theoretical and practical knowledge in the field of PreclinicalFixed Prosthodontics.</p>

2. The purpose of the course	Enable students to master the theoretical and practical knowledge in the field of Preclinical Fixed Prosthodontics and to understand the place and importance of preclinical procedures in the Fixed Prosthodontics.
3. Learning outcomes	<p>After completing lectures and passing the exam from Preclinical Fixed Prosthodontics, the student will have theoretical knowledge of all laboratory procedures in the making of fixed partial dentures.</p> <p>After preclinical practicals, the student will be trained to perform independently:</p> <ul style="list-style-type: none"> - Taking alginate impression of maxilla/mandibula; Analysis of impression accuracy. Pouring the cast. - Analysis of two phase impression accuracy. - Gypsum classification and indications. Gypsum mixing. - Pindex system. Die casting in extra hard gypsum and cast evaluation. - Mounting casts on articulator. - Die preparation. - Wax pattern fabrication for full metal, partially veneered and metal-ceramic single crowns. - Pontic wax pattern fabrication for metal ceramic restorations. - Pontic wax pattern fabrication for partially veneered restorations. <p>The student will through preclinical practicals be introduced to: Choices and sizes of casting rings, vacuum preparation of the investment material (one-faze/two-faze investing), cast ring burnout technique, casting, cleaning the cast, finishing of the cast, application and modeling of the polymer veneering material to the metal base, polymerization, application and modeling of ceramic veneering material to the metal base, metal-ceramic FPD finishing, intraoral scanning, scanning of impressions, scanning of gypsum casts, designing FPD by CAD/CAM system and production of FPD by CAD/CAM system, importance of communication between laboratory and dental office.</p>
4. Study methods	<p>Classes take place in the form of:</p> <ul style="list-style-type: none"> - lectures ex cathedra (L) for all students - preclinical practicals

5. Evaluation methods	<p>At the end of the course the student can acquire a total of 100 points.</p> <p>Within the total point score, the student can acquire a maximum of 50 points during each semester for attendance, activity and partial exam:</p> <ul style="list-style-type: none">- lecture attendance - 2 points,
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- attendance and activity in practical exercises - 2 points - partial exam - 46 points

The partial exam will be held in the 15th week in both semesters. Students sit the partial exam in the form of a test, which is compiled for each exam term, divided into A and B groups (if necessary, C and D groups).

The partial exam is awarded points only if it has a score of at least 55% of correct answers. Each exam question need not be awarded the equal number of points.

The points that the student acquires in both semesters together make the final grade.

According to the aforementioned, the scale is as follows:

Grade	Points	Grade description
10 (A)	95 - 100	Exquisite success without error or with minor errors
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- The final exam will be held in the 17-18 th week at the end of the course for students who have not passed the first and/or the second partial exam.
- The remedial exam will be held in the 19-20 th week at the end of the course for students who have not passed the first and/or the second partial exam.
- In addition, remedial exams are also held in September.

IMPLEMENTING THE COURSE PLAN: PRECLINICAL REMOVABLE PROSTHODONTICS Semester V		
Week	The structure of classes	Number of hours
Week 1.	Lecture: <ul style="list-style-type: none"> - Introduction to removable complete denture: definition, roles, surfaces and components of the denture - Clinical and laboratory stages of complete denture fabrication - Anatomical (preliminary) impression: definition, selection of impression trays and materials, impression making procedure - Pouring preliminary impressions, separating preliminary casts from the impression material, casts trimming 	1
	Preclinical practicals: Selection of impression trays for preliminary impressions of edentulous jaws, making preliminary (anatomical) impressions of the phantom head, pouring preliminary impressions and making of lower and upper preliminary casts, casts trimming (laboratory demonstration, practical work of the student)	3
Week 2.	Lecture: <ul style="list-style-type: none"> - Custom tray: fabrication of close-fit custom tray, fabrication of custom tray with spacer - Final (functional) impression of the upper and lower jaws - Beading and boxing of final (functional) impressions, pouring master casts 	1
	Preclinical practicals: Fabrication of close-fit custom tray (laboratory demonstration, practical work of the student), fabrication of custom tray with spacer (laboratory demonstration)	3
Week 3.	Lecture: <ul style="list-style-type: none"> - Record bases: materials, fabrication - Fabrication of wax occlusion rims - Determining maxillomandibular relations in edentulous mouths 	1
	Preclinical practicals:	3

	Making final (functional) impression of the phantom head, beading and boxing of final (functional) impression, pouring of the upper master cast(laboratory demonstration, practical work of the student)	
Week 4.	Lecture: - Types of articulators - Transferring master casts to an articulator (mounting casts with/without average axis facebow)	1
	Preclinical practicals: Fabrication of record bases and wax occlusion rims (laboratory demonstration, practical work of the student)	3
Week 5.	Lecture: - Choosing artificial teeth and guidelines for proper positioning of anterior teeth,the relationship of anterior teeth in a centric relation position	1
	Preclinical practicals: Maxillomandibular relationship record, mounting the master casts on an articulator (laboratory demonstration, practical work of the student)	3
Week 6.	Lecture: - Choosing artificial teeth and guidelines for proper preliminary setting of posterior teeth (I phase),the relation of posterior teeth in maximal intercuspal position	1
	Preclinical practicals: Marking of the casts and setup of anterior teeth (laboratory demonstration, practical work of the student)	3
Week 7.	Lecture: - Setting of posterior teeth according to the requirements of balanced occlusion - definitive setting (phase II)	1
	Preclinical practicals: Setup of maxillary posterior teeth (laboratory demonstration, practical work of the student)	3
Week 8.	Lecture: - Laboratory procedures of waxing, flasking, packing, pressing, polymerization, deflasking, finishing and polishing of complete dentures	1

	Preclinical practicals: Setup of mandibular posterior teeth (laboratory demonstration, practical work of the student)	3
Week 9.	Lectures: - Remount procedure, checking of occlusal contacts in the laboratory, occlusal equilibration - Repair of a fractured complete denture, replacement of fractured tooth on a complete denture - Denture relining: types, relining the denture base using the indirect method	1
	Preclinical practicals: Laboratory procedures of waxing, flasking, packing, pressing, polymerization, deflasking, finishing and polishing of complete dentures (laboratory demonstration)	3
Week 10.	Lectures: - Immediate complete denture (laboratory procedures)	1
	Preclinical practicals: Repair of a fractured complete denture, replacement of fractured tooth on a complete denture, relining the denture base using the indirect method (laboratory demonstration)	3
Week 11.	Lectures: - Classification of partial edentulism: Kennedy, Wild, Eichner, functional classification with respect to the load (dental, mucosal, combined) - Acrylic removable partial denture: partial denture base, types of wire clasps, retention and stabilization	1
	Preclinical practicals: Specific loading - analysis of casts and class determination, analysis of the abutment teeth morphology, fabrication of wire clasps (laboratory demonstration, practical work of the student)	3
Week 12.	Lecture: - Clinical and laboratory stages of acrylic removable partial denture fabrication	1
	Preclinical practicals: Laboratory procedures in fabrication of acrylic removable partial denture – specifics (laboratory demonstration)	3

Week 13.	Lecture: - Cast removable partial denture: components of removable partial denture - denture base, elements for retention, elements for stabilization, elements for transfer and allocation of loading - Dental parallelometer, his parts, partial denture placing direction, parallelizing, measuring of undercuts, anatomical and prosthetic equator, drawing of denture design	1
	Preclinical practicals: Analysis of the model in a parallelometer, determination of partial denture placing direction, marking of the prosthetic equator on abutment teeth, measuring of undercuts, drawing of denture design (laboratory demonstration)	3
Week 14.	Lecture: Fabrication of removable partial denture with metal base - part I	1
	Preclinical practicals: Preparing and duplicating of master model, making, drying and hardening of investment model, wax-up of the removable partial denture, spruing (laboratory demonstration)	3
Week 15.	Lecture: Fabrication of removable partial denture with metal base - part II	1
	Preclinical practicals: Investing, preheating, burnout, casting, deflasking, sandblasting, finishing, electropolishing (laboratory demonstration)	3

IMPLEMENTING THE COURSE PLAN: PRECLINICAL FIXED PROSTHODONTICS Semester VI		
Week	The structure of classes	Number of hours
Week 1.	Lecture: Introduction. Definition, purpose and scope of fixed prosthodontics. Preclinical and laboratory working place with instruments and devices.	1

	<p>Preclinical practicals: Familiarizing with equipment and materials - Procedure for the preparation of teeth (demonstration).</p>	3
Week 2.	<p>Lecture: Indications and contraindication for crowns, bridges, post and core.</p>	1
	<p>Preclinical practicals: Alginate impression of maxilla/mandibula. Analysis of impression accuracy. Die casting(practical work of the student).</p>	3
Week 3.	<p>Lecture: Preparation of teeth for making a fixed partial dentures, work goal, procedure, mistakes.</p>	1
	<p>Preclinical practicals: Two phase impression of maxilla/mandibula. Analysis of impression accuracy (laboratory demonstration).</p>	3
Week 4.	<p>Lecture: Impression techniques in fixed prosthodontics.</p>	1
	<p>Preclinical practicals: Die casting in extra hard gypsum and cast evaluation. Pindex system (practical work of the student).</p>	3
Week 5.	<p>Lecture: Pouring the cast, working cast with a separate die, pindex system.</p>	1
	<p>Preclinical practicals: Mounting casts on articulator, basic terms (practical work of the student).</p>	3
Week 6.	<p>Lectures: Types of articulators (occlusion and articulation). Mounting casts on articulator, die preparation.</p>	1

	Preclinical practicals: Mounting casts on articulator, die preparation (practical work of the student).	3
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Week 7.	Lecture: Wax pattern fabrication for full metal crown, partially veneered crown, metal-ceramic crown.	1
	Preclinical practicals: Wax pattern fabrication for full metal crown (practical work of the student).	3
Week 8	Lecture: Procedures of casting: Choices and sizes of casting rings, vacuum preparation of the investment material (one-faze/twofaze investing), cast ring burnout technique, casting, cleaning the cast.	1
	Preclinical practicals: Wax pattern fabrication for a partially veneered crown (practical work of the student).	3
Week 9.	Lectures Finishing of the cast.	1
	Preclinical practicals: Wax pattern fabrication for a metal-ceramic crown (practical work of the student).	3
Week 10.	Lecture Modeling of the polymer veneering material to the metal base, polymerization, application and modeling of ceramic veneering material to the metal base, metal-ceramic FPD finishing	1
	Preclinical practicals: Procedures of casting: Choices and sizes of casting rings, vacuum preparation of the investment material (one-faze/two-faze investing), cast ring burnout technique, casting, cleaning the cast, finishing of the cast (laboratory demonstration).	3

Week 11.	Lecture: Cast post and core. Clinical and laboratory aspects, canal preparation, impression, casting.	1
	Preclinical practicals: Modeling of the polymer veneering material to the metal base, polymerization, application and modeling of ceramic	3
	veneering material to the metal base, metal-ceramic FPD finishing (laboratory demonstration).	
Week 12.	Lecture: Dental bridges - types of bridges.	1
	Preclinical practicals: Pontic wax pattern design (practical work of the student).	3
Week 13.	Lecture: Dental bridge retainers. Dental bridge and the relation to the gingiva.	1
	Preclinical practicals: Pontic wax pattern design (practical work of the student).	3
Week 14:	Lecture: CAD/CAM system and press system, production of FPD by CAD/CAM and press systems.	1
	Preclinical practicals: Intraoral scanning, scanning of impressions, scanning of gypsum casts, designing FPD by CAD/CAM system and production of FPD by CAD/CAM system (laboratory demonstration).	3
Week 15:	Lectures: Implant-prosthetic therapy. Specifics in laboratory procedures.	1
	Preclinical practicals: Designing FPD by CAD/CAM system and production of FPD by CAD/CAM system (laboratory demonstration).	3

Weeks17-18.	Final exam	
Weeks19.-20.	Remedial exam	

Code SFSOS0502E	COURSE TITLE: DENTAL PATHOLOGY – PRECLINIC		
Level: undergraduate	Year: III	Semester: V and VI	Total ECTS credits: 6
Status: obligatory			Total classes: 90 (30+60)
Course leader	Head of the department		
Conditions for attending classes: The requirements are regulated by the Study Rules for the Integrated study program of the first and second cycle at the higher education institutions of the University of Sarajevo.			
Course description			
Objectives of the course	Students will acquire basic knowledge encompassing work place and instruments, diagnostics and treatment planning, work field isolation and basic and contemporary principles of cavity preparation.		
Purpose of the course	The goal of preclinical practicals is to prepare a student for future work with patients. Therefore, students are performing all types of cavity preparations on models of teeth on the phantom, placing a lining and/or adhesive system, followed by placement of a permanent restoration, finishing and shaping of a filling and its occlusal adjustment.		
Learning outcomes	Student are improving knowledge in: <ul style="list-style-type: none"> • work place and instruments, • diagnostics and treatment planning, • work field isolation and • basic and contemporary principles of cavity preparation. 		
Learning methods	Lectures Special preclinical practicals		
Criteria for taking the course exam			

Knowledge assessment methods	<p>During the semester students have a short, written knowledge check.</p> <p>At the end of the V semester the students take a written partial exam.</p> <p>Student answers to questions by marking one of the several offered answers.</p> <p>The final exam is taken at the end of the VI semester in the written form.</p>
	<p>Required literature:</p> <ol style="list-style-type: none"> 1. Mount GJ, Hume WR. Preservation and restoration of tooth structure. Mosby International Ltd. 1998.
	<ol style="list-style-type: none"> 2. Summit JB, Robbins JW, Hilton TJ, Schwartz RS. Fundamentals of operative dentistry: a contemporary approach: Quintessence Publishing Co Inc, 2013. <p>Recommended literature:</p> <ol style="list-style-type: none"> 1. Roberson TM, Heymann HO, Swift EJ. Sturdevant's Art and Science of Operative Dentistry, Mosby Inc, 2013.
Rules of grading	See below

Week	Dental pathology – preclinic V semester	Course load
Week 1	<p>Lecture: Dental workplace elements and organization.</p> <p>Hand instruments in restorative procedure</p> <p>Special preclinical practicals: Introduction</p>	<p>1</p> <p>2</p>
Week 2	<p>Lecture: Basics of clinical examination. Tooth Nomenclature. Tooth numbering systems.</p> <p>Special preclinical practicals: Introduction with dental simulated workig place (Phantom).</p>	<p>1</p> <p>2</p>
Week 3	<p>Lecture: Field isolation.</p> <p>Practic lesson: Hand instruments in restorative procedure.</p>	<p>1</p> <p>2</p>
Week 4	<p>Lecture: Rotary instruments</p> <p>Special preclinical practicals: Field isolation.</p>	<p>1</p> <p>2</p>
Week 5	<p>Lecture: Basic principles of cavity preparation (Black's principles)</p> <p>Special preclinical practicals: Clinical examination. Tooth Nomenclature. Tooth numbering systems. Dental records.</p> <p>Predavanje: Temeljna načela izrade kaviteta- Principi preparacije po Black-u</p> <p>Vježbe: Pregled, nomenklatura i obilježavanje zuba</p>	<p>1</p> <p>2</p>

Week 6	Lecture: Class I cavity preparation (Black's principles)-instructions. Special preclinical practicals: Rotary instruments in restorative procedures.	1 2
Week 7	Lecture: Class II cavity preparation (Black's principles)-instructions. Special preclinical practicals: Class I cavity preparation on phantom's tooth.	1 2
Week 8	Lecture: Class V cavity preparation (Black's principles)-instructions.	1 2
	Special preclinical practicals: Specific class I cavity preparation on phantom' tooth	
Week 9	Lecture: Contemporary principles of cavity preparation. Adhesive cavities. Special preclinical practicals: Specific class I cavity preparation on phantom' tooth	1 2
Week 10	Lecture: Class III and IV cavity preparation instructions (adhesive cavities). Special preclinical practicals: Class II cavity preparation on phantom's tooth (two-surface cavities, MO or DO)	1 2
Week 11	Lecture: Indirect restorations (Inlay, onlay, overlay). Instructions for preparation of non-retentive cavities. Special preclinical practicals: Three-surface class II cavity preparation.	1 2
Week 12	Lecture: Veneers- basic principles of preparation and manufacturing. Special preclinical practicals: Class V cavity preparation.	1 2
Week 13	Lecture: Interactive repetition Special preclinical practicals: Class III cavity preparation.	1 2
Week 14	Lecture: Interactive repetition Special preclinical practicals: Class V cavity preparation.	1 2
Week 15	Lecture: Interactive repetition	1 2
Week 17.	Partial exam	1

	Dental pathology – preclinic VI semester
Course description	

Objectives of the course	Through 15 hours of lectures students are given fundamental and new theoretical knowledge in materials for temporary and permanent restorations, recommendations for application of materials in restorative dental medicine, mistakes in restorative treatment and biocompatibility of restorative materials.
Purpose of the course	Students will acquire basic knowledge in: <ul style="list-style-type: none"> • Protection of pulpodentinal complex • Restorative materials and their clinical application • Occlusal adjustment and polishing of fillings • Biocompatibility of materials in restorative dentistry
Learning outcomes	Student are improving preparation all types of cavities on fanthom tooth model and preparing for future work with the patients.

Learning methods	Lectures Special preclinical practicals
Criteria for taking the course exam	
Knowledge assessment methods	During the semester students have a short written knowledge check. At the end of the 6 th semester the students take a practical and written part of the exam. Practical part of the exam: <ul style="list-style-type: none"> • student has to preform one type of cavity preparation on phantom teeth. After the procedure, the examiner grades the student's practical work and enters the grade into the booklet of attendance. Written part of the exam: At the exam, the student draws papers containing questions. Students answer the question by marking the offered answers. If the student gives positive answers to 76% of questions or more, the written part of the exam is considered a pass.
Literature	Required literature: <ol style="list-style-type: none"> 1. Mount GJ, Hume WR. Preservation and restoration of tooth structure. Mosby International Ltd. 1998. 2. Summit JB, Robbins JW, Hilton TJ, Schwartz RS. Fundamentals of operative dentistry: a contemporary approach: Quintessence Publishing Co Inc, 2013. Recommended literature: <ol style="list-style-type: none"> 1. Roberson TM, Heymann HO, Swift EJ. Sturdevant's Art and Science of Operative Dentistry, Mosby Inc, 2013.

Rules of grading	<p>The final grade is formed on the basis of the following factors:</p> <ul style="list-style-type: none"> - attendance at the lecture - maximum 10 points - attendance at practicals - maximum 10 points - short written test of knowledge- maximum 10 points (maximum 5 points per semester) - partial exam - maximum 25 points - practical part of the exam - maximum 20 points - final exam - maximum 25 points <p>10 (A) -95-100 points; 9 (B) - 85-94 points; 8 (C) - 75-84 points;</p>
	<p>7 (D) - 65-74 points; 6 (E) - 55-64 points; 5 (F, FX) – not satisfied, less than 55 points.</p>

Week	Dental pathology – preclinic VI semester	Course load
Week 1.	Lecture: Materials used for pulp-dentin complex reintegration. Special preclinical practicals: Introduction lesson.	1 2
Week 2.	Lecture: Materials used for pulp protection, pulp protection procedures. Special preclinical practicals: Pulp protection procedure under amalgam.	1 2
Week 3.	Lecture: Temporary cavity filling materials. Special preclinical practicals: Pulp protection procedure under adhesive restorative resine.	1 2
Week 4.	Lecture: Dental amalgam. Physical and chemical components and properties. Special preclinical practicals: Practical application of temporary cavity filling materials.	1 2
Week 5.	Lecture: Dental amalgam. Practical clinical application. Special preclinical practicals: Direct and Indirect Pulp Capping	1 2

Week 6.	Lecture: Dental composites. Physical and chemical components and properties. Special preclinical practicals: Matricing systems and interdental wedges introduction.	1 2
Week 7.	Lecture: Adhesion to Enamel and Dentin. Adhesive systems Special preclinical practicals: Class I amalgam restoration.	1 2
Week 8.	Lecture: Clinical application of dental composites. Special preclinical practicals: Class II amalgam restoration.	1 2
Week 9.	Lecture: Glass ionomer cements in restorative procedures. Properties, indications, contraindications and application. Special preclinical practicals: Class V restorations.	1 2
Week 10.	Lecture: Restorative materials biocompatibility. Special preclinical practicals: Amalgam restoration finishing and polishing.	1 2
Week 11.	Lecture: Decision making in restorative material choice.	1
	Special preclinical practicals: Amalgam restoration finishing and polishing.	2
Week 12.	Lecture: Complex restorations Special preclinical practicals: Direct composite restoration of class III cavity	1 2
Week 13.	Lecture: Occlusion in restorative dentistry. Special preclinical practicals: Direct composite restoration of class IV cavity.	1 2
Week 14.	Lecture: Interactive repetition Special preclinical practicals: Direct composite restoration of class V cavity.	1 2
Week 15.	Lecture: Interactive repetition Special preclinical practicals: Interactive repetition	1 2
Week 17..	Final exam	1
Week 18.-20.	Remedial	1

COURSE CONTENT & SCHEDULE:

Week	Form of teaching (lectures / practice)	hours
Week 1	<p>General surgery</p> <p>Lecture: Introduce; History of the surgery; Surgery in the peace and wartime; Modern directions and perspectives of surgery; Aseptic and antiseptic, sterilization methods.</p> <p>Practice: Indications and contraindications for surgery. Introducing to aseptic work; surgical scrubbing; sterilization equipment. Operation room elements; Behavior in operation room.</p>	3 3
Week 2.	<p>General surgery</p> <p>Lecture: - The wound and wound healing. Classification and management of wound, principle of wound healing, principles of primary and secondary wound management, complications during wound healing. Surgical management of snake, insects and mammals stings and bites.</p> <p>Practice: -Surgical instruments; Sewing material, type of sutures; Wound treatment (simulation). Removing stitches from the skin sutures. ,</p>	3 3
Week 3.	<p>General surgery</p> <p>Lecture:- Surgical infections. Factors and causes of aerobic and anaerobic infections in surgery. Treatment of surgical Infections. (panaritium, paronychium, phlegmone, cellulitis, furunculus, carbuncles, necrotizing fasciitis, gas-gangrene...). Importance of the tooth health and oral cavity in prevention of the surgical complications.</p> <p>Practice: Incisions, drainage. Peripheral vein puncture. Infusion system preparation; transfusion kit. Intravenous and muscular injection. Antibiotic administration.</p>	3 3

<p>Week 4.</p>	<p>General surgery</p> <p>Lecture:</p> <p>-Burns, Shock, Bleeding, Transfusion; Crush and blast syndrome; Surgical drains; Bandage; Immobilization.</p> <p>Practice:</p> <p>-Catheterization of the bladder. Surgical knots tying. Small burns management. Biopsy technique. Wound and skin cultures taking. Drainage measurement and control.</p>	<p>2</p> <p>2</p>
<p>Week 5.</p>	<p>General surgery</p> <p>Lecture:</p> <p>Basics of surgical oncology. Basics of surgical immunology. Implants and transplantation principles.</p> <p>Practice:</p> <p>Technique of bandaging; Principles and technique of immobilization.</p>	<p>2</p> <p>2</p>
<p>Week 6.</p>	<p>Anesthesiology and reanimation</p> <p>Lecture:</p> <p>-General anesthesia, local and regional anesthesia, Pain control and therapy. Cardio-pulmonary reanimation. Specificity of metabolism and nutrition of surgical patients.</p> <p>Practice:</p> <p>-Local and regional anesthesia in practice manner. Anesthetists anamnesis, introducing in general anesthesia. Technique of endotracheal intubation. Monitoring of the patients in intensive care unit. Parenteral nutrition. Interpretation of the laboratory results. Basics of the cardio-pulmonary reanimation. Defibrillation. Coma position.</p>	<p>3</p> <p>3</p>
	<p>Neurosurgery</p> <p>Lecture:</p> <p>-Cranio-cerebral and spinal injuries. Degenerative disc disease. Cerebrovascular ischemic disease. Spontaneous intracranial hemorrhages.</p>	

<p>Week 7.</p>	<p>Intracranial aneurisms. Vascular malformations of the brain. Compressive neurovascular syndromes – neuralgias. Intracranial and spinal neurooncology. Surgery of the basis of the skull. Cranial-facial anomalies. Multimodal monitoring of the patients. Surgery of the peripheral nerves.</p> <p>Practice:</p> <p>-Basics of the ambulatory examination in neurosurgery. Glasgow coma score. Approach to the coma – patient. Interpretation of the clinical signs of the increased intracranial pressure. Demonstration of the focal neurological deficit. Meningeal signs. Demonstration of the signs of the cerebral death. Neurological examination of the patient with degenerative disc disease. Lumbar puncture. Interpretation of the acute paraplegia. Paresis and paralysis of the cranial nerves - clinical signs. Clinical signs of the trigeminal neuralgia. Clinical signs of the brain tumor. Peripheral nerve injury – clinical signs. Interpretation of the diagnostic procedures in intracranial hemorrhage, and mass effect on MRI/CT of the brain.</p>	<p>3</p> <p>3</p>
<p>Week 8.</p>	<p>Chest surgery</p> <p>Lecture:</p> <p>-Chest injuries. Tracheal disease. Benign and malignant tumors of the lung. Bronchial tumors. , Surgical infections of the pleura. Mediastinal tumors. Pneumothorax and hemothorax. Breast surgery. Thyroid surgery.</p> <p>Practice:</p> <p>-Auscultation and percussion of the chest. Pleural puncture and drainage. Management of the pneumothorax. Monitoring of the chest drains. Breast examination. Thyroid examination.</p>	<p>3</p> <p>2</p>
<p>Week 9.</p>	<p>Cardiac surgery</p> <p>Lecture:</p> <p>-Congenital anomalies of the heart. Mitral and tricuspid stenosis /insufficiency. Aneurysm of the thoracic aorta. Pulmonary valve insufficiency. Surgery of the ischemic heart disease. Pericardial surgery. Disorders of the heart rhythm.</p> <p>Practice:</p> <p>- Principles of the extracorporeal circulation, invasive cardiology. EKG interpretation. Specific cardiac surgery instruments. Principles of the</p>	<p>3</p> <p>2</p>

	<p>sternotomy. Urgent decompressive operations and punctures. Specific medications in dental practice.</p> <p>Practical exam 1</p> <p>Partial exam 1</p>	<p>1</p> <p>1</p>
Week 10.	<p>Vascular surgery</p> <p>Lecture:</p> <p>-Vascular injuries. Acute and chronic ischemic syndrome. Compressive syndromes. Arterial aneurysms. Basics of the surgical phlebology. Lymphoedema.</p> <p>Practice:</p> <p>-Technique of the vascular examination. Interpretation of the clinical signs and diagnostic procedures. Simulation of the surgical procedures on synthetic vessels.</p>	<p>3</p> <p>3</p>
Week 11.	<p>Abdominal surgery</p> <p>Lecture:</p> <p>-Abdominal injuries. Acute abdomen syndrome. Gastro - esophageal reflux disease. Gastric surgery. Bile tract surgery. Hernias of the abdominal wall. Ileus. Mesenterial thrombosis. Small bowel and large bowel tumors. Acute appendicitis. Anal-rectal fistula and abscesses. Hemorrhoids. Ileostoma; colostoma. Liver and pancreatic surgery. Portal hypertension.</p> <p>Practice:</p> <p>-Examination of the patient with abdominal pain. Interpretation of the diagnostic procedures in abdominal surgery. Digital – rectal examination. Gastric tube placement. Gastric lavage. Inguinal channel digital examination. Enema – clyster. Rectal tube placement. Anus praeternaturalis care.</p>	<p>3</p> <p>3</p>
	<p>Urology</p> <p>Lecture:</p> <p>-injuries of the urinary tract. Infections of the urinary tract. Tumors of the urinary tract and retroperitoneal space. Testicular tumors. Suprarenal</p>	<p>3</p>

<p>Week 12.</p>	<p>tumors. Benign prostatic hyperplasia. Urinary tract stones. Acute scrotum syndrome. Acute retention of urine. Acute and chronic renal insufficiency. Hemodialysis. Kidney transplantation.</p> <p>Practice:</p> <p>-Examination of the patient. Palpation of the testicles. Transillumination of the scrotum. Bladder catheterization. Suprapubic puncture of the bladder.</p>	<p>3</p>
<p>Week 13.</p>	<p>Orthopedics and trauma surgery</p> <p>Lecture:</p> <p>-Congenital deformities of the foot and hip. Tumors of the locomotor system. Morbus Perthes. Inflammatory diseases of the bones and joints. Characteristics of the fractures. Bone healing pathophysiology. Principles of the conservative treatment of the fracture. Osteosynthesis. Fracture and dislocation of the clavicle. Humeral fracture. Elbow dislocation. Fracture of the forearm. Hand injuries. Pelvic fracture. Femoral fracture. Hip dislocation. Knee injuries. Crural fractures. Foot injuries.</p> <p>Practice:</p> <p>-Examination of the locomotor system. Interpretation of the basic radiodiagnostics of the osteo-articular system. Plaster and extensional immobilization. Ingrown nail removal. Principles of the treatment and technique of the fracture and dislocation. Evacuation of the hematoma.</p>	<p>3</p> <p>3</p>
<p>Week 14.</p>	<p>Plastic and reconstructive surgery</p> <p>Lecture:</p> <p>-Free skin transplants. Local grafts, muscular free graft. Hand surgery. Aesthetic surgery. Malignant melanoma. Malignant epithelial skin tumors.</p> <p>Practice:</p> <p>-Surgical treatment of the pressure ulcers. Local treatment of the burns. Principles of the fluid replacement in patients with burns. Clinical presentation of the epithelial skin tumors. Principles of the malignant melanoma excision. Indications for the basic aesthetic surgical procedures. Demonstration of the basic procedures in hand surgery. Practical presentation of skin grafting and transplantation.</p>	<p>3</p> <p>3</p>
<p>Week 15.</p>	<p>Pediatric surgery</p> <p>Lecture:</p> <p>-Congenital anomalies of the head and neck. Ileus in pediatric age. Congenital defect of the abdominal wall. Congenital malformation of the</p>	<p>3</p>

	<p>urinary tract. Anal and rectal malformations. Hirschsprungs disease. Achalasia. Tumors in pediatric age. Appendicitis and Meckels diverticle. Hernias in children.</p> <p>Practice:</p> <p>-Technique of the examination. Wound dressing. Gastric tube and bladder catheterization of the pediatric patient. Enema in children.</p>	3
Week 16.	<p>Practical exam 2</p> <p>Partial exam 2</p>	<p>1</p> <p>1</p>
Week 17.	Final exam	1
Week 18-20	Repeated exam and Remedial exam	1

Code :	Title of the course: SURGERY		
Level: pregraduate	Study year: III	Semester: VI	ECTS: 9
Status: mandatory	Weeks: 15		Total hours: 90
Responsible lecturer:			
Lecturers and assistants:	Prof. dr Dželaludin Junuzović; Prof. dr Ismet Suljević; Prof. dr Adnana Talić-Tanović; Prof. dr Benjamin Kulovac; Prof. dr Kemal Dizdarević; Prof. dr Sanela Salihagić; Prof. dr Ademir Hadžismajlović; Doc. dr Zlatan Zvizdić; Doc. dr Amel Hadžimehmedagić; Doc. dr Slavenka Štraus; Doc. dr Nermir Granov; Doc. dr Ilijaz Pilav; Doc. dr Kenan Karavdić; Doc. dr Samir Šečić; Doc. dr Nedžad Rustempašić; Viši asistent dr Eldin Burazerović; Viši asistent dr Sadeta Begić; Viši asistent dr Adnan Papović; Viši asistent dr Osman Hadžiosmanović; Viši asistent dr Adi Mulabdić.		
Attendance conditions:	Passed exams: Anatomy, Histology, Physiology, Patology and Patophysiology		
1. Course goals and objectives	The purpose of teaching course is to introduce students to the basic surgical principles, elements of the surgical diagnostics and therapy, symptoms of the surgical pathology, specific way of recognizing surgical diseases and injuries, and basic concepts of the procedures in anesthesiology and reanimatology as well.		
2. Overall aim	To train and habilitate student for recognizing the symptoms of the most common surgical diseases and injuries, to train student to carry out the primary surgical examination of the patient on its own, to apply basic surgical procedures according to the diagnostic and therapeutic algorithms, and to manage the adequate transfer of the patient to the specified subspecialties as well.		

<p>3. Course contents and outcomes</p>	<p>Student has to capture basic knowledge and skills :</p> <p>1.General surgery:</p> <p>Aseptic and antiseptic; Sterilization; Wound and healing process; War wounds; Surgical infections; Burns; Shock, and treatments of all kinds of shock; Bleeding; Hemostasis; Transfusion; Surgical immunology; Surgical oncology; Ischemic syndrome; Bandages and immobilization; Emergency and war surgery.</p> <p>2. Anesthesiology and reanimation</p> <p>General, local and regional anesthesia; Pain treatment; Cardio-pulmonary reanimation, Basics of the fluid treatment and minerals management.</p> <p>3. Neurosurgery</p> <p>Cranio-cerebral injuries; Intracranial tumors; Cerebrovascular ischemic disease. Spontaneous intracranial hemorrhage; Compressive neurovascular syndromes – neuralgia, The basis of the skull base surgery; Cranio –facial anomalies; Peripheral nerve injuries; Degenerative disc disease.</p> <p>4. Chest surgery</p> <p>Chest injuries; Pneumothorax; Chest drains; Benign and malignant tumors of the lung and bronchi; Mediastinal tumors; Breast tumors; Thyroid gland tumors, and goiter.</p> <p>5. Cardiac surgery</p> <p>Heart injuries; Ischemic heart disease; Urgent conditions in cardiac surgery; Medication and dental praxis.</p> <p>6. Vascular surgery</p> <p>Vessel injuries; Acute and chronic arterial occlusion; Acute and chronic ischemia; Aneurismal disease; Deep vein thrombosis; Chronic vein insufficiency and varicose veins.</p> <p>7. Abdominal surgery</p>
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	<p>Abdominal injuries; Syndrome of an acute abdomen; Hernias of the abdominal wall; Basics of the gastro-intestinal; hepatic, and bile surgery; Colon-rectal surgery.</p> <p>8. Urology</p> <p>Injuries in urology; Surgery of urodynamic and disorders; Erectile dysfunction; Tumors of urinary and genital tract.</p> <p>9. Orthopedic and trauma surgery</p> <p>Politrauma; Osteo-articular congenital and acquired anomalies; General characteristics of fracture and bone healing; Fracture treatment; Osteosynthesis.</p> <p>10. Plastic and reconstructive surgery</p> <p>Transplants, lobes; Aesthetic surgery; Epithelial skin tumors; Melanoma</p> <p>11. Pediatric surgery</p> <p>Surgery of the congenital anomalies. Acute conditions in pediatric surgery patients.</p>
<p>4. Learning methods</p>	<p>The course will be realised through:</p> <ul style="list-style-type: none"> - Lectures (45 hours) - Practicals (45 hours) <p>Teaching metods:</p> <ul style="list-style-type: none"> – interactive, theoretical and practical teaching – small groups of students – “Peyton’s 4-steps approach” (problem based learning), and OSCE method (an objective structured clinical examination) will be applied for practical teaching. <p>- A continuous knowledge assessment is planned within calculated number of teaching hours (Practical exam 1; Practical exam 2, as well as Partial theoretical exam 1, and Partial theoretical exam 2).</p>
<p>5. Knowledge assessment methods</p>	<p>Knowledge assessment is will be conducted continuously through the semester and on the Final exam. All parts of the exam have to be realized and evaluated.</p> <p>Continuous knowledge assessment</p> <p>Continuous knowledge assessment includes: Partial exam 1 (subject matters from Course block 1: General surgery, Anesthesiology,</p>

Neurosurgery, Chest surgery; Cardiac surgery), **Partial exam 2** (subject matters from Course block 2: Vascular surgery, Abdominal surgery, Urology, Orthopedic and trauma surgery; Plastic and reconstructive surgery; and Pediatric surgery), and **Practical exam 1 and Practical exam 2**. Parts of the exam which student did not pass have to be evaluated on the Final exam.

Practical exam 1 implies assessment of the acquired skills from the following subject matters: General surgery, Anesthesiology, Neurosurgery, Chest surgery; Cardiac surgery. The acquired skills will be evaluated through the solving the tasks that are previously defined on the check list. Student will get one check list from the each subject matter:

- General surgery – 8 questions (maximal score 4 points, minimal score 2.5 points)
- Anesthesiology and reanimat. – 6 questions (maximal score 3 points, minimal score 2 points)
- Neurosurgery – 5 questions (maximal score 2.5 points, minimal score 1.5 points)
- Chest surgery – 3 questions (maximal score 1.5 points, minimal score 1 point)
- Cardiac surgery – 3 questions (maximal score 1.5 points, minimal score 1 point)

Each successfully solved task carries 0.5 points.

Practical exam 2 implies assessment of the acquired skills from the following subject matters: Vascular surgery, Abdominal surgery, Urology, Orthopedic and trauma surgery; Plastic and reconstructive surgery; and Pediatric surgery.

The acquired skills will be evaluated through the solving the tasks that are previously defined on the check list. Student will get one check list from the each subject matter:

- Vascular surgery – 3 questions (maximal score 1.5 points, minimal score 1 point)
- Abdominal surgery – 8 questions (maximal score 4 points, minimal score 2.5 points)
- Urology – 3 questions (maximal score 1.5 points, minimal score 1 point)
- Orthopedic and trauma surgery – 6 questions (maximal score 3 points, minimal score 2 points)

- Plastic and reconstructive surgery – 6 questions (maximal score 3 points, minimal 2 points)
- Pediatric surgery – 4 questions (maximal score 2 points, minimal score 1.5 points)

Each successfully solved task carries 0.5 points.

Maximal score that could be achieved on Practical exam 1 is 12.5 points, and minimal 8 points. Maximal score that could be achieved on Practical exam 2 is 15 points, and minimal 10 points.

Total sum of points that could be captured on this part of continuous knowledge assessment is 27.5 points. At least over-half score out of each subject matter has to be captured to pass the exam. Points from this part of exam will be added to the points realized on the other parts of the exam to form the final mark.

Partial exam 1 is formed as a written test within 70 „multiple choice” questions (MCQ): General surgery – 20 MCQ (maximal score 10 points, minimal 5.5 points), Anesthesiology and reanimat. – 15 MCQ (maximal score 7.5 points, minimal 4 points) Neurosurgery – 15 MCQ (maximal score 7.5 points, minimal 4 points), Chest surgery – 10 MCQ (maximal score 5 points, minimal 3 points), and Cardiac surgery – 10 MCQ (maximal score 5 points, minimal 3 points). Maximal score that could be achieved on Partial exam 1 is 35 points. Student has to capture at least 19.5 points, and at least over-half score out of each subject matter.

Partial exam 2 is formed as a written test within 75 MCQ as it follows: Vascular surgery – 10 MCQ (maximal score 5 points, minimal 3 points), Abdominal surgery – 20 MCQ (maximal 10 points, minimal 6 points), Urology – 10 MCQ (maximal score 5 points, minimal 3 points), Orthopedics and trauma surgery – 15 MCQ (maximal score 7.5 points, minimal 4 points), Plastic and reconstructive surgery – 10 MCQ (maximal score 5 points, minimal 3 points), and Pediatric surgery – 10 MCQ (maximal score 5 points, minimal 3 points). Maximal score that could be achieved on Partial exam 2 is 37.5 points. Student has to capture at least 22.5 points, and at least over-half score out of each subject matter.

Final exam

Final exam is oral test of knowledge from those areas that have not been passed on the previous exam parts. Complete practical exam has to be passed to approach to the Final exam. Parts of the practical exam that have not been passed should be realized according to the previously presented principles of the acquired skills evaluation.

Oral exam and evaluation of knowledge is based on answers to questions printed on certified test card. All test cards are in the deck and students

randomly choose one of them. Questions are arranged and distributed according to blocks of teaching areas:

Student which did not pass Partial exam 1 draw the card from the deck of “Block I” with questions from the subject matters: General surgery (3 questions; maximal score 10 points, minimal 5.5 points); Anesthesiology and reanimatology (2 questions; maximal score 7.5 points, minimal 4 points); Neurosurgery (2 questions; maximal score 7.5 points, minimal 4 points); Chest surgery (1 question; maximal score 5 points, minimal 3 points); Cardiac surgery (1 question; maximal score 5 points, minimal 3 points). Maximal score responds to maximal score of Partial exam 1 and it is 35 points. Student has to capture at least 19.5 (at least over-half score out of each subject matter).

Student which did not pass Partial exam 2 draw the card from the deck of “Block 2” with questions from the subject matters: Vascular surgery (1 question; maximal score 5 points, minimal 3 points); Abdominal surgery (3 questions; maximal score 10 points, minimal 6 points); Urology (1 question; maximal score 5 points, minimal 3 points); Orthopedic and trauma surgery (2questions; maximal score 7.5 points, minimal 4 points); Plastic and reconstructive surgery (1 question; maximal score 5 points, minimal 3 points), and Pediatric surgery (1 question; maximal score 5 points, minimal 3 points). Maximal score responds to maximal score of Partial exam 2 and it is 37,5 points. Student has to capture at least 22 points (at least over-half score out of each subject matter).

Repeated and Remedial exam

Parts of the exam that student have not passed are evaluated orally on the Repeated and Remedial exam according the rules of Final exam.

Evaluation of the results, grade and marks

Total number of points captured through the all kinds of knowledge assessment translates in a final result as it is shown:

<i>Mark-grade</i>	<i>Total points</i>	<i>Description</i>
10 (A)	95-100	Exceptional and remarkable success without or with insignificant faults
9 (B)	85-94	Above standard, with some faults
8 (C)	75-84	Average, with notable faults
7 (D)	65-74	Generally good, but with significant faults
6 (E)	55-64	Meets the minimum criteria
5 (F, FX)	<55	Does not meet the minimum criteria

6. Literature:	<p>Mandatory: - Schwartz. Principles of surgery, McGraw Hill education 2015. Tenth edition. ISBN: 978-0-07-180092-1 (e-book)</p> <p>Additional: - Greenfield's Surgery: Scientific Principles and Practice Editor: Mulholland, Michael W.; Lillemoe, Keith D.; Doherty, Gerard M.; Maier, Ronald V.; Upchurch, Gilbert R. Publisher: Lippincott Williams & Wilkins Edition: 4th Edition ISBN: 0781756243 (e-book)</p>

COURSE CONTENT & SCHEDULE

Week	Form of teaching (lectures / practice)	hours
Week 1	<p>General surgery</p> <p>Lecture: Introduce; History of the surgery; Surgery in the peace and wartime; Modern directions and perspectives of surgery; Aseptic and antiseptic, sterilization methods.</p>	3
	<p>Practice: Indications and contraindications for surgery. Introducing to aseptic work; surgical scrubbing; sterilization equipment. Operation room elements; Behavior in operation room.</p>	3
Week 2.	<p>General surgery</p> <p>Lecture: - The wound and wound healing. Classification and management of wound, principle of wound healing, principles of primary and secondary wound management, complications during wound healing. Surgical management of snake, insects and mammals stings and bites.</p>	3
	<p>Practice: -Surgical instruments; Sewing material, type of sutures; Wound treatment (simulation). Removing stitches from the skin sutures. ,</p>	3
Week 3.	<p>General surgery</p> <p>Lecture:- Surgical infections. Factors and causes of aerobic and anaerobic infections in surgery. Treatment of surgical Infections. (panaritium, paronychium, phlegmone, cellulitis, furunculus, carbuncles, necrotizing fasciitis, gas-gangrene...). Importance of the tooth health and oral cavity in prevention of the surgical complications.</p>	3
	<p>Practice: Incisions, drainage. Peripheral vein puncture. Infusion system preparation; transfusion kit. Intravenous and muscular injection. Antibiotic administration.</p>	3

<p>Week 4.</p>	<p>General surgery</p> <p>Lecture:</p> <p>-Burns, Shock, Bleeding, Transfusion; Crush and blast syndrome; Surgical drains; Bandage; Immobilization.</p> <p>Practice:</p> <p>-Catheterization of the bladder. Surgical knots tying. Small burns management. Biopsy technique. Wound and skin cultures taking. Drainage measurement and control.</p>	<p>2</p> <p>2</p>
<p>Week 5.</p>	<p>General surgery</p> <p>Lecture:</p> <p>Basics of surgical oncology. Basics of surgical immunology. Implants and transplantation principles.</p> <p>Practice:</p> <p>Technique of bandaging; Principles and technique of immobilization.</p>	<p>2</p> <p>2</p>
<p>Week 6.</p>	<p>Anesthesiology and reanimation</p> <p>Lecture:</p> <p>-General anesthesia, local and regional anesthesia, Pain control and therapy. Cardio-pulmonary reanimation. Specificity of metabolism and nutrition of surgical patients.</p> <p>Practice:</p> <p>-Local and regional anesthesia in practice manner. Anesthetists anamnesis, introducing in general anesthesia. Technique of endotracheal intubation. Monitoring of the patients in intensive care unit. Parenteral nutrition. Interpretation of the laboratory results. Basics of the cardio-pulmonary reanimation. Defibrillation. Coma position.</p>	<p>3</p> <p>3</p>
	<p>Neurosurgery</p> <p>Lecture:</p> <p>-Cranio-cerebral and spinal injuries. Degenerative disc disease. Cerebrovascular ischemic disease. Spontaneous intracranial hemorrhages.</p>	

<p>Week 7.</p>	<p>Intracranial aneurisms. Vascular malformations of the brain. Compressive neurovascular syndromes – neuralgias. Intracranial and spinal neurooncology. Surgery of the basis of the skull. Cranial-facial anomalies. Multimodal monitoring of the patients. Surgery of the peripheral nerves.</p> <p>Practice:</p> <p>-Basics of the ambulatory examination in neurosurgery. Glasgow coma score. Approach to the coma – patient. Interpretation of the clinical signs of the increased intracranial pressure. Demonstration of the focal neurological deficit. Meningeal signs. Demonstration of the signs of the cerebral death. Neurological examination of the patient with degenerative disc disease. Lumbar puncture. Interpretation of the acute paraplegia. Paresis and paralysis of the cranial nerves - clinical signs. Clinical signs of the trigeminal neuralgia. Clinical signs of the brain tumor. Peripheral nerve injury – clinical signs. Interpretation of the diagnostic procedures in intracranial hemorrhage, and mass effect on MRI/CT of the brain.</p>	<p>3</p> <p>3</p>
<p>Week 8.</p>	<p>Chest surgery</p> <p>Lecture:</p> <p>-Chest injuries. Tracheal disease. Benign and malignant tumors of the lung. Bronchial tumors. , Surgical infections of the pleura. Mediastinal tumors. Pneumothorax and hemothorax. Breast surgery. Thyroid surgery.</p> <p>Practice:</p> <p>-Auscultation and percussion of the chest. Pleural puncture and drainage. Management of the pneumothorax. Monitoring of the chest drains. Breast examination. Thyroid examination.</p>	<p>3</p> <p>2</p>
<p>Week 9.</p>	<p>Cardiac surgery</p> <p>Lecture:</p> <p>-Congenital anomalies of the heart. Mitral and tricuspid stenosis /insufficiency. Aneurysm of the thoracic aorta. Pulmonary valve insufficiency. Surgery of the ischemic heart disease. Pericardial surgery. Disorders of the heart rhythm.</p> <p>Practice:</p> <p>- Principles of the extracorporeal circulation, invasive cardiology. EKG interpretation. Specific cardiac surgery instruments. Principles of the</p>	<p>3</p> <p>2</p>

	<p>sternotomy. Urgent decompressive operations and punctures. Specific medications in dental practice.</p> <p>Practical exam 1</p> <p>Partial exam 1</p>	<p>1</p> <p>1</p>
Week 10.	<p>Vascular surgery</p> <p>Lecture:</p> <p>-Vascular injuries. Acute and chronic ischemic syndrome. Compressive syndromes. Arterial aneurysms. Basics of the surgical phlebology. Lymphoedema.</p> <p>Practice:</p> <p>-Technique of the vascular examination. Interpretation of the clinical signs and diagnostic procedures. Simulation of the surgical procedures on synthetic vessels.</p>	<p>3</p> <p>3</p>
Week 11.	<p>Abdominal surgery</p> <p>Lecture:</p> <p>-Abdominal injuries. Acute abdomen syndrome. Gastro - esophageal reflux disease. Gastric surgery. Bile tract surgery. Hernias of the abdominal wall. Ileus. Mesenterial thrombosis. Small bowel and large bowel tumors. Acute appendicitis. Anal-rectal fistula and abscesses. Hemorrhoids. Ileostoma; colostoma. Liver and pancreatic surgery. Portal hypertension.</p> <p>Practice:</p> <p>-Examination of the patient with abdominal pain. Interpretation of the diagnostic procedures in abdominal surgery. Digital – rectal examination. Gastric tube placement. Gastric lavage. Inguinal channel digital examination. Enema – clyster. Rectal tube placement. Anus praeternaturalis care.</p>	<p>3</p> <p>3</p>
	<p>Urology</p> <p>Lecture:</p> <p>-injuries of the urinary tract. Infections of the urinary tract. Tumors of the urinary tract and retroperitoneal space. Testicular tumors. Suprarenal</p>	<p>3</p>

<p>Week 12.</p>	<p>tumors. Benign prostatic hyperplasia. Urinary tract stones. Acute scrotum syndrome. Acute retention of urine. Acute and chronic renal insufficiency. Hemodialysis. Kidney transplantation.</p> <p>Practice:</p> <p>-Examination of the patient. Palpation of the testicles. Transillumination of the scrotum. Bladder catheterization. Suprapubic puncture of the bladder.</p>	<p>3</p>
<p>Week 13.</p>	<p>Orthopedics and trauma surgery</p> <p>Lecture:</p> <p>-Congenital deformities of the foot and hip. Tumors of the locomotor system. Morbus Perthes. Inflammatory diseases of the bones and joints. Characteristics of the fractures. Bone healing pathophysiology. Principles of the conservative treatment of the fracture. Osteosynthesis. Fracture and dislocation of the clavicle. Humeral fracture. Elbow dislocation. Fracture of the forearm. Hand injuries. Pelvic fracture. Femoral fracture. Hip dislocation. Knee injuries. Crural fractures. Foot injuries.</p> <p>Practice:</p> <p>-Examination of the locomotor system. Interpretation of the basic radiodiagnostics of the osteo-articular system. Plaster and extensional immobilization. Ingrown nail removal. Principles of the treatment and technique of the fracture and dislocation. Evacuation of the hematoma.</p>	<p>3</p> <p>3</p>
<p>Week 14.</p>	<p>Plastic and reconstructive surgery</p> <p>Lecture:</p> <p>-Free skin transplants. Local grafts, muscular free graft. Hand surgery. Aesthetic surgery. Malignant melanoma. Malignant epithelial skin tumors.</p> <p>Practice:</p> <p>-Surgical treatment of the pressure ulcers. Local treatment of the burns. Principles of the fluid replacement in patients with burns. Clinical presentation of the epithelial skin tumors. Principles of the malignant melanoma excision. Indications for the basic aesthetic surgical procedures. Demonstration of the basic procedures in hand surgery. Practical presentation of skin grafting and transplantation.</p>	<p>3</p> <p>3</p>
<p>Week 15.</p>	<p>Pediatric surgery</p> <p>Lecture:</p> <p>-Congenital anomalies of the head and neck. Ileus in pediatric age. Congenital defect of the abdominal wall. Congenital malformation of the</p>	<p>3</p>

	urinary tract. Anal and rectal malformations. Hirschsprungs disease. Achalasia. Tumors in pediatric age. Appendicitis and Meckels diverticle. Hernias in children. Practice: -Technique of the examination. Wound dressing. Gastric tube and bladder catheterization of the pediatric patient. Enema in children.	3
Week 16.	Practical exam 2 Partial exam 2	1 1
Week 17.	Final exam	1
Week 18-20	Repeated exam and Remedial exam	1

Code: SFSOM0503E		COURSE TITLE: INTERNAL MEDICINE	
Level: undergraduate	Year: III	Semester: V	ECTS credits: 9
Course status: compulsory		Total classes: 105	
Professor in charge:			
Entry requirements: courses Pathophysiology and Pathology have to be passed			
1. Course objectives	<p>Introduce the student with: the causes that lead to diseases of the internal organs (pulmonary diseases, heart diseases, digestive tract diseases, hepatobiliary tract and pancreas, kidney diseases, diseases of the blood vessels, connective tissue diseases, endocrine diseases and hematological diseases):</p> <ul style="list-style-type: none"> - pathogenic processes leading to the development of these diseases - clinical manifestations of internal organs disease - rational diagnostics based on physical findings (anamnesis and clinical examination) and targeted diagnostic methods - modern principles of prevention and treatment of internal organs diseases. 		

<p>2. Course purpose</p>	<p>After successfully completing the course, the student will be able to:</p> <ul style="list-style-type: none"> - understand the etiopathogenesis of internal organs diseases - identify the symptoms and clinical manifestations of these diseases - perform a practical examination of the patient - plan and use rational diagnostic methods in setting the diagnosis of internal organs diseases - plan the treatment of these diseases.
<p>3. Learning outcomes</p>	<p>PROPEDEUTICS OF HEAD AND NECK REGION</p> <p>Module 1. Anamnesis, examination of the head and neck Introduce the student with the methods of taking an anamnesis and examining the head and neck in internal medicine. Introduce a student with a way of recognizing pathological signs and features.</p> <p>CARDIOLOGY</p> <p>Module 2. Examination of the cardiac patient and congenital cardiac diseases The goal of the module is to introduce a student with symptomatology, physical examination in heart diseases, and diagnostic methods used in cardiology. It is also necessary to introduce a student with etiopathogenesis, clinical picture and treatment of the most common congenital and acquired heart defects.</p> <p>Module 3. Ischemic heart disease, arrhythmias, and arterial hypertension</p>

	<p>The goal of the module is to introduce a student with clinical picture, diagnosis and treatment of coronary disease, acute coronary syndrome, heart rhythm disorders, and arterial hypertension.</p> <p>Module 4. Myocarditis, pericarditis and cardiac insufficiency The goal of the module is to introduce a student with etiopathogenesis, clinical picture and rational treatment of inflammatory diseases of the heart muscle and epicardium, and cardiac weakness.</p> <p>RHEUMATOLOGY</p> <p>Module 5. Joint diseases The aim of this module is to introduce a student with etiopathogenesis, clinical picture, diagnosis and treatment of chronic rheumatic joint disease, metabolic bone diseases and systemic connective tissue diseases.</p> <p>PULMOLOGY</p> <p>Module 6. Examination of the pulmonary patient The goal of the module is to introduce a student with symptoms and signs in lung diseases and diagnostic methods in pulmonology.</p> <p>Module 7. Inflammatory diseases of the pulmonary parenchyma The aim of the module is to introduce a student with etiopathogenesis, clinical picture and treatment of non-specific inflammation of the airway and pulmonary parenchyma, and their complications.</p> <p>Module 8. Tuberculosis The goal of the module is to introduce a student with etiopathogenesis, clinical picture and treatment of tuberculosis.</p> <p>Module 9. Asthma and allergic diseases of respiratory organs The goal of the module is to introduce a student with etiopathogenesis, a clinical picture, and the treatment of asthma and allergic diseases of the respiratory organs.</p> <p>Module 10. Chronic obstructive pulmonary disease (COPD) The goal of the module is to introduce a student with etiopathogenesis, a clinical picture, and the treatment of COPD and chronic respiratory insufficiency.</p> <p>Module 11. Emergency conditions in pulmonology and pulmonary thromboembolism The aim of the module is to introduce a student with etiopathogenesis, a clinical picture, and the management of emergency conditions in pulmonology and pulmonary thromboembolism.</p> <p>GASTROENTEROLOGY</p>
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	<p>Module 12. Diseases of the upper part of digestive tube The goal of the module is to introduce a student with symptomatology, etiopathogenesis, clinical picture, modern diagnostics and rational treatment of diseases of esophagus, stomach and duodenum.</p> <p>Module 13. Diseases of the lower part of the digestive tube. The goal of the module is to introduce a student with etiopathogenesis, clinical picture, diagnosis and treatment of lower part of digestive tube.</p> <p>Module 14. Liver diseases The aim of the module is to introduce a student with risk factors for the emergence of acute and chronic liver diseases, with a clinical picture, diagnosis and treatment of acute and chronic liver diseases.</p> <p>Module 15. Diseases of the biliary tract and pancreas The module aims to introduce a student with etiopathogenesis, clinical picture, diagnosis and treatment of gallbladder, biliary and pancreatic diseases.</p> <p>Module 16. Inflammatory bowel diseases The goal of the module is to introduce a student with etiopathogenesis, clinical picture, diagnosis and treatment of inflammatory bowel disease.</p> <p>Module 17. Emergency conditions in gastroenterology The goal of the module is to introduce a student with etiopathogenesis, clinical picture, diagnosis and treatment of emergency conditions in gastroenterology.</p> <p>ENDOCRINOLOGY</p> <p>Module 18. Pituitary gland and neurohypophysis diseases The goal of the module is to introduce a student with clinical aspects of neuroendocrine regulation, and etiopathogenesis, clinical picture and treatment of pituitary gland and neurohypophysis.</p> <p>Module 19. Diseases of thyroid and parathyroid glands The module aims to introduce a student with etiopathogenesis, clinical picture, diagnosis and treatment of thyroid gland and parathyroid glands.</p> <p>Module 20. Adrenal gland diseases and avitaminosis The module aims to introduce a student with etiopathogenesis, clinical picture, diagnosis and treatment of adrenal gland diseases, and clinical aspects of avitaminosis.</p> <p>Module 21. Diabetes mellitus</p>
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	<p>The goal of the module is to introduce a student with etiopathogenesis, clinical picture, complications, diagnostics and modern treatment of diabetes mellitus.</p> <p>NEPHROLOGY</p> <p>Module 22. Examination of nephrology patients, urinary infections The aim of this module is to introduce a student with symptoms and signs in kidney diseases, diagnostic methods in nephrology, and clinical and diagnostic-therapeutic aspects of urinary infections.</p> <p>Module 23. Tubulointerstitial nephropathy and glomerulopathy The aim of this module is to introduce the student with etiopathogenetic aspects, clinical picture, diagnosis of acute and chronic pyelonephritis and glomerular clinical pathological syndromes.</p> <p>Module 24. Acute and chronic renal insufficiency. Hemodialysis and kidney transplantation The aim of this module is to introduce the student with the etiology and pathophysiology of acute and chronic renal failure, clinical picture, diagnostic methods and principles of treatment of uremia and uremic syndrome, and procedures of hemodialysis and kidney transplantation.</p> <p>HEMATOLOGY</p> <p>Module 25. Clinical characteristics of hematologic patients The goal of the module is to introduce the student with the clinical characteristics of hematologic patients and additional methods of examination in hematology.</p> <p>Module 26. Disorders of erythrocyte and granulocyte blood cell line. Myeloproliferative diseases and diseases of the platelets The aim of the module is to introduce a student with etiopathogenesis, clinical picture, diagnosis and treatment of erythrocyte and granulocyte blood cell line disorders, and myeloproliferative diseases and platelets disease.</p> <p>Module 27. Coagulation disorders and transfusion medicine The aim of the module is to introduce a student with etiopathogenesis and a clinical picture of coagulation disorders and the place of transfusion medicine in the diagnosis and treatment of these diseases.</p> <p>ANGIOLOGY</p> <p>Module 28. Examination of angiology patients, atherosclerosis The aim of this module is to introduce a student with risk factors for the development of cardiovascular diseases and etiopathogenic</p>
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	<p>mechanisms of the onset and diagnosis of atherosclerosis, and therapeutic principles.</p> <p>Module 29. Peripheral circulatory diseases The aim of this module is to introduce a student with etiopathogenesis, clinical picture, diagnosis and treatment of peripheral blood vessel diseases.</p> <p>ONCOLOGY</p> <p>Module 30. Head and neck tumors The aim of this module is to introduce a student with head and neck tumors, principles of diagnostics and therapy.</p> <p>The student will adopt the following knowledge through this course: 1. Understand the causes and mechanisms of the onset of internal diseases 2. Recognize the symptoms and signs of the most common diseases of the internal organs 3. Suggest diagnostic methods to determine the diagnosis of the disease as early and accurately as possible 4. Suggest adequate treatment for internal organs diseases</p> <p>Through the classes of this course, student will overwhelm the following skills, which are needed to know to practically perform (knows how, and does): 1. Take the correct anamnesis of the disease. 2. Apply methods of physical examination of the patient's head and neck 3. Basic thoracic physical examination methods 4. Inspection and palpation of the abdomen 5. Inspection and succussion of lumbar departments 6. Basic physical examination of joints and extremities 7. Interpretation of laboratory analysis of peripheral blood 8. Interpretation of urine analysis</p> <p>Skills that a student needs to know (knows how): 1. Diagnostic methods in pulmonology - spirometry - gas analysis of arterial blood - examination of sputum - PA X-ray image, CT and MRI scans of lungs - bronchoscopy - pleural puncture - transthoracic pleura and lung biopsy 2. Diagnostic methods in cardiology - echocardiography - ergometry - holter monitoring - coronarography 3. Diagnostic methods in gastroenterology - esophagogastrosocopy</p>
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	<ul style="list-style-type: none"> - colonoscopy - ultrasound of the liver, bile, bile duct and pancreas - native abdominal X ray image - endoscopic retrograde cholecysto pancreatography - CT and MRI abdomen scans - endoscopic biopsies and liver biopsy <p>4. Diagnostic methods in endocrinology</p> <ul style="list-style-type: none"> - endocrine glands ultrasound - X ray imaging of sella turcica - CT and MRI imaging of pituitary gland and glands with internal secretion - hormonal status of the glands with internal secretion - determining the glycemic profile, HbA1c, fructosamine, insulin <p>5. Diagnostic and therapeutic methods in nephrology - ultrasound of the kidneys and urinary bladder</p> <ul style="list-style-type: none"> - kidney scintigraphy - doppler analysis of blood vessels of the kidneys - CT and MRI kidney imaging - micturition cystogram - renal biopsy - peritoneal dialysis - hemodialysis - kidney transplantation <p>6. Diagnostic methods in hematology</p> <ul style="list-style-type: none"> - sternal puncture and sternal puncture smear layer sampling - bone biopsy - puncture of the lymph node - lymph node biopsy <p>7. Diagnostic methods in angiology</p> <ul style="list-style-type: none"> - color-doppler blood vessel analysis - angiography <p>8. Diagnostic methods in rheumatology</p> <ul style="list-style-type: none"> - X-ray diagnostics of bones and joints - ultrasound and MRI diagnostics - immunological tests in rheumatology <p>9. Diagnostic methods in oncology</p> <ul style="list-style-type: none"> - staging methods of head and neck tumors - principles of chemotherapy and radiotherapy <p>After attending classes, the student should adopt the following attitudes:</p> <ul style="list-style-type: none"> - Dentist should be familiar with the basic methods of physical internistic examination and diagnostics of the disease. - Integrating data from a history and physical examination with laboratory and radiological findings helps the physician to distinguish certain diseases. - The correct diagnosis determines the type of treatment of the patient, where the decision of the physician could influence the further course of the disease and the quality of life of the patient.
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<p>4. Learning methods</p>	<p>Course content will be conducted in a form of:</p> <ul style="list-style-type: none"> - lectures - practical exercises <p>Within the provided number of classes, there will be forms of continuous knowledge testing.</p>
<p>5. Methods of student knowledge assessment</p>	<p>Students' knowledge testing will be carried out continuously during the semester and as a final exam.</p> <p>Continuous knowledge testing It includes first and second part of practical exam and first and second part of partial exam.</p> <p>First part of practical exam It includes the assessment of the acquired skills processed through modules 1-17 in the field of head and neck propedeutics, cardiology, rheumatology, pulmonology, gastroenterology. Evaluation of adopted skills is done by fulfilling the tasks previously defined in the checklist. Each task carries the appropriate number of points. The maximum number of points a student can score is 10. In order to pass this exam, the student must score at least 5.5 points. The scored number of points is added to the other points in forming of the final grade.</p> <p>First part of the partial exam It is in a written form, by test with 50 MCQ questions, which examine the knowledge adopted through modules 1-17. The student can score a total of 50 points (1 point for each correct answer to the MCQ question). In order to pass the exam, the student must score at least 27 points on this MCQ test. The scored number of points is added to the other points in forming of the final grade. If the student did not pass the first part partial exam, it has to be retaken on the final exam.</p> <p>Second part of the practical exam It includes the assessment of the acquired skills processed through modules 18-30 in the field of endocrinology, nephrology, hematology, angiology and oncology. Evaluation of adopted skills is done by fulfilling the tasks previously defined in the checklist. Each task carries the appropriate number of points. The maximum number of points a student can score is 10. In order to pass this exam, the student must score at least 5.5 points. The scored number of points is added to the other points in forming of the final grade.</p> <p>Second part of the partial exam It is in a written form, by test with 30 MCQ questions, which examine the knowledge adopted through modules 18-30. The student can score a total of 30 points (1 point for each correct answer to the MCQ question). In order to pass the exam, the student must score at least 16</p>

	<p>points on this MCQ test. The scored number of points is added to the other points in forming of the final grade. If the student did not pass the second part partial exam, it has to be retaken on the final exam.</p> <p>Final exam The student passes only the course content that he/she has not passed in previous examinations of knowledge and skills.</p> <p>The condition for taking the written part of the final exam was previously passed the practical part of the exam.</p> <p>From each form of knowledge and skills assessment, a student must score at least 55% of the predicted score for that part of the exam. The number of points scored thus is added to the other points in forming of the final grade.</p> <p>Final grade is formed as follows: 10 (A) - 95-100 points, 9 (B) - 85-94 points, 8 (C) - 75-84 points, 7 (D) - 65 - 74 points, 6 (E) - 55-64 points, 5 (F, FX) - below 55 points.</p>
<p>6. Recommended literature:</p>	<ol style="list-style-type: none"> 1. Kasper D, Fauci A, Hauser S, Longo D, Jameson J, Loscalzo J. Harrison's Principles of Internal Medicine. 19th edition, The McGraw- Hill; 2015. 2. Bonow R (ed). Braunswald's Heart Disease: A Textbook of Cardiovascular Medicine. Philadelphia: Saunders; 2011. 3. Rajagopulan S, Dean SM, Mohler ER, Mukhetjee (eds). ; Manual of Vascular Diseases. Philadelphia: Lippincott Williams & Wilkins; 2012. 4. Klippel JH, Dieppe PA. Rheumatology. 6th edition, Mosby International; 2014.
<p>7. Exam questions</p>	<p>Exam questions are corresponding to the theoretical and practical topics in the course weekly teaching plan in V semester.</p>
<p>The terms for student consultations are every day from 12:00-14:00 hours with prior announcement by the Secretary of the Department of Internal Medicine or by e-mail: mediha.zalihic@mf.unsa.ba</p>	

WEEKLY TEACHING PLAN V SEMESTER

Week	Course form and content	Number of classes
Week 1	Lecture: Anamnesis (current disease, earlier diseases, personal history, family and social history, epidemiological survey, decursus morbi and epicrisis). Basic methods of physical examination of an internistic patient. General patient status (status praesens). Head and neck examination.	3
	Practical exercises: they are conducted by internal medicine sections according to the advertised schedule.	4
Week 2	Lecture: Symptomatology and physical examination in cardiac diseases. Diagnostic methods in cardiology. Angina pectoris. Myocardial infarction. Heart rhythm disorders.	3
	Practical exercises: they are conducted by internal medicine sections according to the advertised schedule.	4
Week 3	Lecture: Arterial hypertension. Myocarditis. Pericarditis. Cardiac insufficiency. Cardiopulmonary resuscitation.	3
	Practical exercises: they are conducted by internal medicine sections according to the advertised schedule.	4
Week 4	Lecture: Congenital cardiac defects, division into groups. Acquired heart defects.	2
	Lecture: Symptoms and signs of connective tissue disease. Diagnostic methods in rheumatology. Chronic rheumatic joint disease. Metabolic diseases of the joints and bones. Systemic connective tissue diseases.	1
	Practical exercises: they are conducted by internal medicine sections according to the advertised schedule.	4
Week 5	Lecture: Symptoms and signs in pulmonary diseases. Diagnostic methods in pulmonology. Typical and atypical inflammations of lower respiratory tract and pulmonary parenchyma with complications.	3
	Practical exercises: they are conducted by internal medicine sections according to the advertised schedule.	4

Week 6	<p>Lecture: Tuberculosis of the lungs. Pulmonary thromboembolism. Chronic obstructive pulmonary disease (COPD). Bronchial asthma. Chronic respiratory insufficiency. Emergency conditions in pulmonology</p> <p>Practical exercises: they are conducted by internal medicine sections according to the advertised schedule.</p>	<p>3</p> <p>4</p>
Week 7	<p>Lecture: Symptoms and signs of digestive tube diseases, hepatobiliary system and pancreas. Diseases of the esophagus. Ulcer disease.</p> <p>Practical exercises: they are conducted by internal medicine sections according to the advertised schedule.</p>	<p>3</p> <p>4</p>
Week 8	<p>Lecture: Bleedings in the gastrointestinal system. Bowel diseases Chronic hepatitis (etiology, epidemiology, clinical picture, diagnosis and therapy). Cirrhosis of the liver. Transplantation of the liver. Diseases of gallbladder and biliary system. Pancreatic diseases.</p> <p>Practical exercises: they are conducted by internal medicine sections according to the advertised schedule.</p>	<p>3</p> <p>4</p>
Week 9	<p>Lecture: First part of partial exam</p> <p>Lecture: Avitaminosis. Pituitary gland diseases. Diseases of neurohypophysis. Diseases of the thyroid gland (hyperthyroidism, hypothyroidism).</p> <p>Practical exercises: First part of practical exam</p>	<p>2</p> <p>1</p> <p>4</p>
Week 10	<p>Lecture: Parathyroid gland disorders. Diseases of the adrenal glands. Diabetes mellitus (etiology, pathogenesis, clinical picture, diagnosis, therapy). Acute and chronic complications.</p> <p>Practical exercises: they are conducted by internal medicine sections according to the advertised schedule.</p>	<p>3</p> <p>4</p>

Week 11	Lecture: Symptoms and signs in kidney diseases, physical examination. Diagnostic methods in nephrology. Urinary infections. Pyelonephritis. Glomerulonephritis. Acute renal insufficiency. Chronic renal insufficiency. Dialysis. Transplantation of the kidney.	3 4
	Practical exercises: they are conducted by internal medicine sections according to the advertised schedule.	
Week 12	Lecture: Clinical characteristics of hematologic patients. Diagnostic methods in hematology. Diseases of the erythrocytes. Diseases of the granulocyte blood cell line. Myeloproliferative diseases. Diseases of platelets. Coagulation disorders. Transfusion medicine. Practical exercises: they are conducted by internal medicine sections according to the advertised schedule.	3 4
Week 13	Lecture: Methods of peripheral blood vessel examination, atherosclerosis, peripheral circulation diseases. Practical exercises: they are conducted by internal medicine sections according to the advertised schedule.	3 4
Week 14	Lecture: Tumors of the head and neck. Principles of diagnostics, staging and treatment. Practical exercises: they are conducted by internal medicine sections according to the advertised schedule.	3 4
Week 15	Lecture: Second part of partial exam Practical exercises: second part of practical exam	3 4
Week 17-18	Final exam	
Week 19-20	Final exam/retake	

Code: SFSOM0504E	COURSE TITLE: BASICS OF CLINICAL RADIOLOGY		
Level of study: undergraduate	Year: III	Semester: V	ECTS credits: 5
Course status: compulsory		Total classes: 75	
Professor in charge:			
Entry requirements: no entry requirements			
1. Course objectives:	Introduce third year students within the course content about the basics of special or clinical radiology with the radiological presentation of individual diseases of the central nervous system, neck, thorax, abdomen, urogenital tract and musculoskeletal system and algorithms of diagnostic methods in certain diseases of the mentioned systems.		
2. Course purpose:	Introduce students with the significance and place of classical and digital diagnostic methods, their useful and harmful characteristics, as well as with the relationship and place of classical and digital imaging techniques in relation to laboratory and clinical diagnostic procedures, in order to establish the right diagnosis as soon as possible based on the aforementioned radiological methods of imaging.		

<p>3. Learning outcomes:</p>	<p>Through this course students will adopt the following knowledge:</p> <p>Module 1 Introduction to clinical radiology The goal of the module is to introduce students to the definition, division and location of clinical radiology, the importance of laboratory and clinics in classical and digital imaging techniques, and their advantages and disadvantages.</p> <p>Module 2. Radiographic procedures in clinical radiology In this module, the student receives information on radiography of the central nervous system, skeleton, diascopy and radiographs of the lungs and hearts, digestive tract radiologic searches, and special radiological methods, as well as contrast radiographs of other areas where contrast media are used, with basic information on contrast media, digital and interventional techniques, and anesthesia in radiology.</p> <p>Module 3. Radiological protection It covers radiological protection, with units used in radiology for the evaluation of radiation effects, and legal regulations essential for the professional protection of persons exposed to radioactive radiation and patients.</p> <p>Module 4. Special or clinical radiology</p>
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	<p>It includes radiological diagnostics of the central nervous system, respiratory and cardiovascular system, gastro-intestinal, hepatobiliary and genitourinary system and musculoskeletal system.</p> <p>The skills that the student should adopt and be able to practically perform:</p> <ol style="list-style-type: none"> 1. Description of the organization, structure and equipment of the Institute 2. Identification of radiological equipment (classical and digital equipment) 3. Identification of photographic material (film, cassette, chamber, dry view laser imager system). 4. Differentiation of protective agents in radiology. 5. Identification and description of the thoracic radiography and native abdominal radiography, skeleton radiography and special recordings (classic tomography, tomosynthesis, mammography, xeroradiography, seriography, X-ray cinematography). 6. Perform radioscopy of thoracic organs. 7. Performing contrast radiological tests (angiography, esophageal and gastroduodenal passage, myelography, hysterosalpingography). 8. Perform a digital method examination 9. Performing emergency procedures in radiology.
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4. Learning methods:	The course content takes place in the form of: - Lectures - seminars in interactive groups of 10-20 students. During the seminar, different methods of work will be used: discussion, case studies or seminar work and its presentation. - Practical exercises
5. Methods for student knowledge assessment	Methods of student knowledge assessment: Regular attendance in the classes - 5 points Continuous assessment of knowledge during lectures and on practical exercises Seminars - 10 points Oral exam or written test Oral exam - 5 questions (answer to 3 questions and partially on the others = 6; answer to 4 questions and partially to the others = 7-9; answer to 5 questions = 8- 10) With seminar and regular attendance at lectures. Written test - 20 questions (answer to 12 questions and partial answer to other questions = 6; answer to 13-16 questions and partial to other questions = 7-8; answer 16-18 questions and partial to other = 9; answer to 18-20 questions = 10). With seminar and regular attendance at lectures. Final grade is formed as follows: 10 (A) - 95-100 points, 9 (B) - 85-94 points,
	8 (C) - 75-84 points, 7 (D) - 65 - 74 points, 6 (E) - 55-64 points, 5 (F, FX) - below 55 points.
6. Recommended literature	1. Gunderman R. Essential Radiology, Clinical Presentation, Pathophysiology, Imaging. Thieme; 2006. 2. Richardson M. Fundamentals of Diagnostic Radiology. Baltimore: Williams&Wilkins; 2003.
7. Exam questions	Exam questions are corresponding to the theoretical and practical topics in the course weekly teaching plan in V semester.
Consultations are carried out in agreement with the professor in charge of the course.	

WEEKLY TEACHING PLAN

V SEMESTER

Week	Course form and content	number of classes
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Week 1	Lecture: Central and peripheral nervous system: examination methods, examination algorithm, central nervous system (CNS) diseases	3
	Practical exercises: Introduction with the standard and digital radiologic techniques of the CNS examination	2
	Seminars	
Week 2	Lecture: Spine and neck diseases: methods of examination, examination algorithm, spine and neck diseases from the base of the skull to the upper thoracic aperture and along the spine	3
	Practical exercises: Introduction with standard and digital radiologic techniques for examining the neck and its structures	2
	Seminars	
Week 3	Lecture: Respiratory system: criteria for satisfactory X-ray imaging, appearance of normal thorax structure, examination methods, examination algorithms, pulmonary segments, pulmonary diseases (malignant, inflammatory and interstitial, circulatory).	3
	Practical exercises: Radioscopy of the thoracic organs, radiography, digital radiologic methods of pulmonary disease examination	2
	Seminars	
Week 4	Lecture: Respiratory system: criteria for satisfactory X-ray imaging, appearance of normal thorax structure, examination methods, examination algorithms, pulmonary segments, pulmonary diseases (malignant, inflammatory and interstitial, circulatory).	3
	Practical exercises: Radioscopy of the thoracic organs, radiography, digital radiologic methods of pulmonary disease examination	2
	Seminars	

<p>Week 5</p>	<p>Lecture: Cardiovascular system: examination methods, cardiac diascopy, teleradiography, cardiac angiocardiology, ultrasound, MSCT, MRI, PET, SPECT, congenital heart disease and diseases of large blood vessels, acquired heart diseases</p> <p>Practical exercises: Presentation of images and methods of examination of the cardiovascular system (classical TMG, radiophotography, mammography, xeroradiography, seriography, X-ray imaging, sialography, CT, MRI, ultrasound).</p> <p>Seminars</p>	<p>3</p> <p>2</p>
<p>Week 6</p>	<p>Lecture: Cardiovascular system: examination methods, cardiac diascopy, teleradiography, cardiac angiocardiology, ultrasound, MSCT, MRI, PET, SPECT, congenital heart disease and diseases of large blood vessels, acquired heart diseases</p> <p>Practical exercises: Presentation of images and methods of examination of the cardiovascular system (classical TMG, radiophotography, mammography, xeroradiography, seriography, X-ray imaging, sialography, CT, MRI, ultrasound).</p> <p>Seminars</p>	<p>3</p> <p>2</p>
<p>Week 7</p>	<p>Lecture: Mediastinal diseases: methods of examination of classical and digital radiography, mediastinal diseases (inflammatory, congenital and malignant).</p> <p>Practical exercises: Presentation of mediastinal diseases with radiological, ultrasound, CT and MRI images and angiographic examinations. Examination algorithms and intervention procedures.</p> <p>Seminars</p>	<p>3</p> <p>2</p>

<p>Week 9</p>	<p>Lecture: Gastrointestinal tract diseases, examination methods, radioscopy, radiography, double contrast technique, x-ray examination of the esophagus and gastroduodenum, parietography, pneumoperitoneum, hypotonisation, examination of the duodenal flexure, passage of the intestines, pharmacological passage, examination of the small intestine with the probe. Diseases of the esophagus, gastric diseases, duodenal diseases, malabsorption diseases. Small intestine: anomalies, regional enteritis, other diseases of the small intestine, small intestine neoplasms. X-ray imaging of acute abdomen, ultrasound and CT imaging of acute abdomen. Colon: colon anomalies, length anomalies, position changes, colonic hernias, colonic inflammation, ulcerative colitis, diverticular colon, papillary lesions, colon malignancies, rare colony lesions. Postoperative conditions: esophagectomy, stomach and small intestine surgery procedures, colon surgery. Arteriography, splenoportography, CT and MRI imaging examinations of the digestive tract. Examination algorithms, interventional procedures.</p> <p>Practical exercises: Presentation of gastrointestinal tract diseases with radiological, ultrasound, CT and MRI images and angiographic examination. Examination algorithms and intervention procedures.</p> <p>Seminars</p>	<p>3</p> <p>2</p>
<p>Week 10</p>	<p>Lecture: Diagnostics of hepatopancreatobiliary system with spleen, utilities of available methods of examination: classical; native and contrasting, digital (ultrasound, CT, MRI, DSA), invasive and interventional. Diseases of the liver, pancreas, biliary tract, and spleen: congenital, acquired - vascular diseases, inflammatory, tumors, trauma. Biliary tract - congenital anomalies, acquired diseases - cholelithiasis, choledocholithiasis, inflammatory diseases, tumors, cholecystosis and dyskinesia.</p> <p>Practical exercises: Presentation of pathological conditions on the hepatopancreatobiliary tract, spleen, urogenital and reproductive tract with breast pathology.</p> <p>Seminars</p>	<p>3</p> <p>2</p>

Week 11	<p>Lecture: Diagnostics of hepatopancreatobiliary system with spleen, utilities of available methods of examination: classical; native and contrasting, digital (ultrasound, CT, MRI, DSA), invasive and interventional. Diseases of the liver, pancreas, biliary tract, and spleen: congenital, acquired - vascular diseases, inflammatory, tumors, trauma. Biliary tract - congenital anomalies, acquired diseases - cholelithiasis, choledocholithiasis, inflammatory diseases, tumors, cholecystosis and dyskinesia.</p> <p>Practical exercises: Presentation of pathological conditions on the hepatopancreatobiliary tract, spleen, urogenital and reproductive tract with breast pathology.</p> <p>Seminars</p>	<p>3</p> <p>2</p>
Week 12	<p>Lecture: Urinary system and adrenal glands: classical and digital methods of radiologic examination, congenital anomalies, calculosis, urinary tract infections, kidney tumors, urinary tract trauma, urinary bladder and adrenal glands</p> <p>Practical exercises: Imaging presentation of pathological conditions on the urinary tract from the area of the kidneys, urinary bladder, adrenal glands.</p> <p>Seminars</p>	<p>3</p> <p>2</p>
Week 13	<p>Lecture: Reproductive system: Female and male pelvis, inflammations, congenital anomalies, malignant diseases, breast diseases</p> <p>Practical exercises: Presentation of reproductive system diseases with radiological, ultrasound, CT and MRI images and angiographic examination. Examination algorithms and intervention procedures.</p> <p>Seminars</p>	<p>3</p> <p>2</p>

<p>Week 15</p>	<p>Lecture: Musculoskeletal diagnostics, available methods of examination, classic X-ray imaging: native, standard and special imaging, contrast methods, digital radiological methods, interventional radiological methods. Algorithm of radiological diagnostic examinations, interventional radiological methods. Inflammatory processes on bones: Xray, tomography (TMG), CT, MRI. Spine: degenerative diseases, fistulography, scintigraphy, xeroradiography, Xray, TMG, CT, CT biopsy, MRI. Tumor processes: X-ray, CT, MRI, scintigraphy, angiography, ultrasound, CT biopsy, pathological vascularization. Trauma: X-ray, TMG, arteriography, MRI and MRA, CT and CTA, ultrasound. Degenerative bone processes: X-ray, CT, MRI, osteodensitometry, TMG, xeroradiography, aortography, myography. Coxarthrosis. Metabolic and hormonal processes on bones: X-ray, osteodensitometry, CT, ultrasound, MRI. Osteomalacia of hip. Vascular processes on blood vessels of the extremities: angiography, phlebography, CT, MRI, intervention procedures. Congenital anomalies of the bone system: X-ray, CT, MRI, spina bifida.</p> <p>Practical exercises: Presentation of diseases of the musculoskeletal system with radiological imaging, X-ray, ultrasound, CT, MRI, angiography, examination algorithms and intervention procedures.</p> <p>Seminars</p>	<p>3</p> <p>2</p>
<p>Week 17-18</p>	<p>Final exam</p>	
<p>Week 19-20</p>	<p>Final exam/retake</p>	

Code: SFSOM0505E	COURSE TITLE: PHARMACOLOGY AND TOXICOLOGY		
Level of study: undergraduate	Year: III	Semester: V and VI	ECTS credits: 6
Course status: compulsory			Total classes: 90
Professor in charge:			
Entry requirements: according to the regulations of studying in University of Sarajevo			
1. Course objectives:	<p>The objective of the course is to give students knowledge about the general principles of pharmacology and the basic characteristics of drugs used in the treatment of infections, malignancies, allergies, autoimmune diseases, diseases of the vegetative nervous system, central nervous system, cardiovascular system, blood, respiratory system, gastrointestinal system, the endocrine system, and the basic principles of drug choice.</p> <p>In the framework of toxicology, the goal of teaching is to introduce students to the problem of psychoactive substance abuse, and to acquire knowledge about the characteristics and treatment of the most common poisonings.</p>		
2. Course purpose:	<p>With the knowledge gained from this course, students will have the basic knowledge necessary for overwhelming materials from clinical subjects, as well as for practical work.</p>		

<p>3. Learning outcomes:</p>	<p>The aim of the course is to enable students, through lectures, independent work and discussion, to acquire knowledge in the following areas:</p> <p>Module 1. GENERAL PHARMACOLOGY: The goal of the module is to introduce with the concept of medicament, the general principles of pharmacology, the basic principles of pharmacodynamics and pharmacokinetics.</p> <p>Module 2. CHEMOTHERAPY The goal of the module is to get acquainted with drugs in the treatment of infections and malignancies.</p> <p>Module 3. PHARMACOLOGY OF THE VEGETATIVE NERVOUS SYSTEM The aim of the module is to learn about medicaments that affect the vegetative nervous system: cholinomimetics and cholinolytics, adrenomimetics and adrenolytics.</p> <p>Module 4. PHARMACOLOGY OF CENTRAL NERVOUS SYSTEM The aim of the module is to introduce with the mechanism of action of drugs in the central nervous system and the basic characteristics of the following therapeutic groups of medicaments: general and local</p>
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	<p>anesthetics, analgesics, anxiolytics, sedatives, hypnotics, antipsychotics, antidepressants, antiepileptics, antiparkinson medicaments.</p> <p>Module 5. IMMUNOPHARMACOLOGY The goal of the module is to introduce students with drugs in the treatment of allergic and autoimmune diseases.</p> <p>Module 6. TOXICOLOGY The goal of the module is to learn about the problems of drug abuse and abuse of the other psychoactive substances, overdose of drugs, and the most common poisoning.</p> <p>Module 7. PHARMACOLOGY OF CARDIOVASCULAR SYSTEM The goal of the module is to introduce students with medications used in the treatment of cardiac insufficiency, arrhythmia, hypertension and hypotension, and in the treatment of myocardial ischemia.</p> <p>Module 8. PHARMACOLOGY OF BLOOD The goal of the module is to introduce students with medicines used in sideropenic anemia and drugs that act to blood coagulation.</p> <p>Module 9. PHARMACOLOGY OF RESPIRATORY SYSTEM The goal of the module is to introduce students with medications used in obstructive diseases and in the treatment of coughing.</p> <p>Module 10. PHARMACOLOGY OF GASTROINTESTINAL SYSTEM The goal of the module is to introduce students with medications used in the treatment of ulcer disease, nausea, and intestinal peristalsis disorders.</p> <p>Module 11. PHARMACOLOGY OF ENDOCRINE SYSTEM The goal of the module is to introduce students with hormones as drugs and medicines used in adrenal and thyroid gland disorders, in the treatment of diabetes mellitus, and with basic methods of contraception.</p> <p>PRACTICAL EXERCISES: <u>Pharmacography, rational pharmacotherapy and overdose</u> The goal, within the practical part of the course, is that students adopt the knowledge and skill of prescribing different pharmaceutical forms of drugs, a rational choice of the drug for certain clinical conditions and diseases, and the identification and management of poisoning.</p>
<p>4. Learning methods:</p>	<p>The course content will take place in form of:</p> <ul style="list-style-type: none"> - lectures - practical exercises

<p>5. Methods for student knowledge assessment</p>	<p>Knowledge assessment is performed by 2 colloquiums and 2 partial exams.</p> <p>Passed colloquiums are a condition for taking the written part of the final exam.</p> <p>First partial exam It is in written form and consists 30 MCQ questions. The maximum number of points is 30, and the exam is passed if the student achieves 55% of the correct answers. This exam is taken in 15th week of teaching plan in V semester after processed modules of 1-6.</p> <p>Second partial exam It is in written form and consists 30 MCQ questions. The maximum number of points is 30, and the exam is passed if the student achieves 55% of the correct answers. This exam is taken in 15th week of teaching plan in VI semester after processed modules of 7-11.</p> <p>Final exam It is also in written form, and students who passed both partial exams do not enter the final exam. Students take only those partial exam in the final exam which they did not pass previously. Those students who has not passed any of the partial exams at the final exam have MCQ test with a total of 60 exam questions. That integral test consists of two parts, with a reference to the subject matter, with first part of 30 questions referred to modules 1-6, and the second part of the 30 questions referred to modules 7-11. In order to pass this exam, students also must have 55% accurate answers to the questions from both parts, separately. If not, the final exam integral test shall not be recognized as passed.</p> <p>Practical part of the exam Checking of the acquired skills through practical exercises will be carried out continuously during the semester through two colloquiums: Colloquium 1 - legislation in prescribing drugs and pharmacography Colloquium 2 - Rational pharmacotherapy and overdose</p> <p>The maximum number of points that could be scored in colloquium 1 or in colloquium 2 is 20 points. The colloquium is considered to be passed if the student has achieved a minimum of 55% of maximal points.</p> <p>Final exam: students who did not satisfy some of the colloquium during the course of classes are enrolled. At the final exam a student must achieve 55% of the maximum number of points from each of not previously passed colloquiums. If a student has two not passed colloquiums and fails to score the required</p>
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	<p>minimal number of points for each of colloquiums, the practical exam will not be considered as passed. Only students who have fully passed the practical exam can access the written part of the final exam.</p> <p>Final grade is formed as follows: 10 (A) - 95-100 points, 9 (B) - 85-94 points, 8 (C) - 75-84 points, 7 (D) - 65 - 74 points, 6 (E) - 55-64 points, 5 (F, FX) - below 55 points.</p>
6. Recommended literature	<ol style="list-style-type: none"> 1. Rang HP, Dale MM, Ritter JM, Flower JR, Henderson G. Pharmacology. USA.7th edition. Elsevier Inc; 2012. 2. Katzung's - Basic and Clinical Pharmacology. 12th edition. USA. The McGraw Hill Companies Inc; 2012. 3. Brunton L, Chabner B, Knollman B. Goodman & Gilman's the pharmacological basis of therapeutics. USA 12th edition.The McGraw Hill Companies Inc; 2011.
7. Exam questions	Exam questions are corresponding to the theoretical and practical topics in the course weekly teaching plans in V and VI semester.

WEEKLY TEACHING PLAN

V SEMESTER

Week	Course form and content	number of classes
Week 1	Lecture: Introduction to Pharmacology · Definition of medicament and poison · Definition of medicament, origin and name of drugs · Methods of drug administration	3
	Practical exercises: drug definition, drug development; drug information sources	1
Week 2	Lecture: Pharmacodynamics of drugs · Mechanisms of drug action · Drug interactions · Side effects of medicaments	3
	Practical exercises: legislation about the drug market, prescription and issuing of drugs, poisons, narcotic drugs.	1

Week 3	Lecture: Pharmacokinetics of drugs	3
	<ul style="list-style-type: none"> · Absorption of drugs · Transportation of medicines · Distribution of medicines · Biotransformation of drugs · Excretion of drugs <p>Practical exercises: the parts and the contents of the recipe</p>	1
Week 4	Lecture: Chemotherapy <ul style="list-style-type: none"> · Anti-infective drugs · Penicillins and cephalosporins · Aminoglycosides · Chloramphenicol, tetracyclines <p>Practical exercises: pharmacography: tablets and capsules</p>	3 1
Week 5	Lecture: <ul style="list-style-type: none"> · Macrolides · Sulfonamides · Quinolones · Antifungal drugs · Antiviral drugs · Amebicide drugs <p>Practical exercises: pharmacography: suppositories, cleansing liquids</p>	3 1
Week 6	Lecture: <ul style="list-style-type: none"> · Antiseptics and disinfectants in dentistry · Chemotherapy of malignant diseases <p>Practical exercises: pharmacography: injections and infusions</p>	3 1
Week 7	Lecture: Pharmacology of the vegetative nervous system Cholinomimetics and cholinolytics. Adrenomimetics and adrenergic antagonists Practical exercises: pharmacography: solutions for internal application	3 1

Week 8	Lecture: Pharmacology of the central nervous system · General anesthetics · Local anesthetics · Opioid analgesics Practical exercises: pharmacography: drops for internal use	3 1
Week 9	Lecture: · Analgesics-antipyretics · Non-steroidal anti-inflammatory drugs Practical exercises: pharmacography: powders for internal application	3 1
Week 10	Lecture: Anxiolytics, sedatives, hypnotics · Benzodiazepines · Barbiturates Practical exercises: pharmacography: powders for external application	3 1
Week 11	Lecture: · Antipsychotics · Antidepressants Practical exercises: pharmacography: solutions for external application	3 1
Week 12	Lecture: · Antiepileptics · Antiparkinsonics Practical exercises: pharmacography: drops for external application	3 1
Week 13	Lecture: Immunopharmacology · Immunosuppressants · Immunostimulants · H1 antihistamines Practical exercises: pharmacography: ointments and pastes	3 1

Week 14	Lecture: Toxicology · Abuse of psychoactive substances · Caffeine, nicotine, alcohol · Overdose with medicaments · Poisoning with metals · Poisons that pollute the human environment	3
	Practical exercises: pharmacography: inhalations	1
Week 15	Colloquium 1	1
	First partial exam	3

VI SEMESTER

Week	Course form and content	number of classes
Week 1	Lecture: Pharmacology of the cardiovascular system. Drugs in the treatment of cardiac insufficiency	1
	Practical exercises: factors that affect the effects of drugs (doses of drugs, doses for children, special conditions, therapeutic span)	1
Week 2	Lecture: Antiarrhythmic drugs	1
	Practical exercises: rational pharmacotherapy. The choice of the medicament in the treatment of pain	1
Week 3	Lecture: Antihypertensive medicaments	1
	Practical exercises: the choice of the medicament in the treatment of pain	1
Week 4	Lecture: Antihypotensive drugs	1
	Practical exercises: the choice of the medicament in the treatment of pain	1

Week 5	Lecture: Medicaments for the treatment of myocardial ischemia	1
	Practical exercises: The choice of the medicament in the treatment of infections in the oral cavity	1
Week 6	Lecture: Pharmacology of blood Antianemics	1
	Practical exercises: the choice of a drug in the treatment of infections in the oral cavity	1
Week 7	Lecture: Medicaments that act on blood coagulation process	1
	Practical exercises: the choice of a drug in the treatment of infections in the oral cavity	1
Week 8	Lecture: Pharmacology of respiratory system Oxygenotherapy Bronchodilators	1
		1

	Practical exercises: Simulated patients (the use of an appropriate drug in the treatment of pain and an infection of the oral cavity)	
Week 9	Lecture: Medicaments in the treatment of coughing Expectorants	1
	Exercises: Procedures in the case of bleeding disorders in dental practice	1
Week 10	Lecture: Pharmacology of the gastrointestinal system Drugs in the treatment of ulcer disease	1
	Practical exercises: treatment of anaphylactic shock	1

Week 11	Lecture: Antiemetics, emetics, laxatives, antidiarrheals	1
	Practical exercises: overdose (overdose types, clinical picture and overdose treatment)	1
Week 12	Lecture: Pharmacology of the endocrine system Hormones of the adrenal glands Hormones of the thyroid glands	1
	Practical exercises: overdose with analgesics	1
Week 13	Lecture: Drugs in the treatment of diabetes mellitus	1
	Practical exercises: overdose with psychoactive substances	1
Week 14	Lecture: Sex hormones Contraception	1
	Practical exercises: simulated patients (application of appropriate treatment procedure in case of overdose)	1
Week 15	Colloquium 2	1
	Second partial exam	1
Week 17-18	Final exam	
Week 19-20	Final exam/retake	

CODE: SFSOS0506E		COURSE TITLE: DENTAL ANESTHESIOLOGY		
Level: Undergraduate		YEAR: III	SEMESTER: V	ECTS Credits: 4
Status: Obligatory				TOTAL classes: 60 (30 + 30)
LECTURER IN CHARGE :		HEAD OF DEPARTMENT		
Requirements for taking the course: Requirements regulated by the Rule book on studying at the first cycle of studies at the University of Sarajevo.				
1. Course objectives		Introduce a student with basic concepts of chemistry of local anesthetic and vasoconstrictor, introduce equipment of local anesthesia, therapeutic options for solving general and local complications during and after the local anesthesia application.		
2. Purpose of the course		Student should practically know how to apply infiltration anesthesia in upper and lower jaw and have theoretical knowledge about application of other types of regional anesthesia.		

3. Learning outcomes	After the course and upon finalization of the exam student should have in depth knowledge of pain management in dental office i.e. benefits of isolated local anesthesia, combined local anesthesia and farmacosedation as well as application of general anesthesia. Student should have basic knowledge about chemistry of local anesthesia and vasoconstriction agents, know instruments for local anesthesia and therapeutic options for management of local and systemic complications during and after application of local anesthesia.
4. Teaching methods	Interactive lectures, practical exercises, continuous assessment of knowledge.
5. Methods learning assessment	of During the lectures – oral exam. At the end of the course – written exam. Upon completion of pre exam assignments and passing the exam student can have maximum of 100 points and final grade is formed of following elements: - obligatory presence at the lectures – 30 points, - one written paper complemented with oral presentation - 20 points, - final exam – written test 50 points GRADING SCHEMA: A (10) = 95 – 100 B (9) = 85 - 94 C (8) = 75 - 84 D (7) = 65 - 74 E (6) = 55 – 64* F Student that score 55-69% can take additional exam. Students that score below 55% have to take the course again.
6. Literature:	MANDATORY: 1.Malamed FS. Sedation. 4th edition: Mosby; 2003. 2.Malamed FS. Handbook of local anesthesia, 5th edition. Mosby; 2004. OPTIONAL/SUPPLEMENTARY: 1. Kućanski B, Sulejmanagić H, Mustagrudić D, Gojkov T. Oralna hirurgija, I part, II edition, editor: Sulejmanagić H. Sarajevo: USBiH; 1998. 2. Todorović Lj, et al. Anestezija u stomatologiji. Beograd: University in Belgrade; 1997.

NO	CONTENT LECTURES	HOURS
1 week	Introduction. Brief historical overview. Definition, types, indications and contraindications for application of local anesthetics.	2
2 week	Classification of local anesthetics, pharmacokinetics and mechanism of action hypotheses .	2
3 week	Properties and clinical mechanism of local anesthetics effect. Esters, amides, selection of anesthetic.	2
4 week	Vasoconstrictors-mechanism of action, concentration and selection of vasoconstrictor. Preparation of patient for local anesthesia and dental-surgical intervention.	2

5 week	Psychological preparation, premedication, arrangement of surgical site. Equipment required for local anesthesia.	2
6 week	General anesthesia in dentistry and oral surgery.	2
7 week	Plexus anesthesia. Types of local anesthesia techniques. Anatomic topographic overview and innervation of maxilla and mandible. Success rate, anesthetized area and complications during and after application of plexus anesthesia.	2
8 week	Maxillary regional anesthesia. Extraoral and intraoral application of tuber anesthesia. Anatomic landmarks needed for application of tuber anesthesia. Success rate, anesthetic field and complications during and after application of tuber anesthesia. Extraoral and intraoral application of infraorbital anesthesia. Anatomic landmarks needed for application of infraorbital anesthesia. Success rate, anesthetic field and complications during and after application of infraorbital anesthesia.	2
9 week	Regional anesthesia of n.palatinus maior, intraoral technique. Anatomic landmarks needed for application of this anesthesia. Success rate, anesthetic field and complications during and after application of this anesthesia. Anesthesia of n. nasopalatinus, intraoral technique. Anatomic landmarks needed for application of this anesthesia. Success rate, anesthetic field and complications during and after application of this anesthesia.	2
10 week	Regional anesthesia in mandible. Techniques of intraoral and extraoral application of mandibular block. Anatomic landmarks needed for finding the needle insertion site and application of mandibular block; direct and indirect method.	2
11 week	Regional anesthesia in mandible. Techniques of intraoral and extraoral application of mandibular block. Success rate (reasons of potential failure), anesthetic field and complications during and after application of this anesthesia.	2
12 week	Regional anesthesia of n.lingualis. Anatomic landmarks needed for application of this anesthesia. Success rate, anesthetic field and complications during and after application of this anesthesia. Regional anesthesia of n. buccalis. Anatomic landmarks needed for application of this anesthesia. Success rate, anesthetic field and complications during and after application of this anesthesia	2
13 week	Regional anesthesia of n. mentalis. Anatomic landmarks needed for application of this anesthesia. Success rate, anesthetic field and complications during and after application of this anesthesia. Vtechnique of chin anesthesia. Unconventional techniques of anesthesia – PDL, intraosseous anesthesia, Akinosi, Gow-Gates mandibular block (basics).	2
14 week	Local complications during and after application of plexus and regional anesthesia using various techniques. Failure in success of local anesthesia, pain during and after application of anesthetic, trismus, hematoma, diplopia, needle fracture, ischemia, nerve injury, xerostomia, lip injury, intravascular application.	2
15 week	Systemic complications during and after application of local anesthesia. Collapse, syncope, toxic reaction, allergic reaction, epileptic seizure and hysterical seizure.	2

NO	CONTENT PRACTICALS	HOURS
Week 1	Practical introduction to local anesthesia. Demonstration of various forms of local anesthetics: injectable, topical – spray and gel topical anesthetics. Introduction to different types of local anesthetics in terms of chemical composition. Introduction to adrenalin. Making of anesthetic with different adrenalin concentration in ambulatory care. Instruments for application of local anesthesia. Different types of syringes, ampules and needles.	2
Week 2	Preclinical application of terminal anesthesia using models – demonstration of patient-doctor position during application of plexus anesthesia in upper and lower jaw. Demonstrating palatal, lingual and vestibular application of plexus anesthesia .	2
Week 3	Preclinical application of regional anesthesia in upper jaw using models - demonstration of patient-doctor position during application of regional anesthesia in upper jaw. Demonstration of tuber anesthesia (extraoral and intraoral), infraorbital anesthesia (extraoral and intraoral), regional anesthesia of n. palatinus maior and n. nasopalatinus.	2
Week 4	Preclinical application of mandibular anesthesia using models - demonstration of patient-doctor position during application of regional anesthesia in lower jaw. Demonstration of mandibular block technique - extraoral and intraoral (direct and indirect), regional anesthesia of buccal and lingual nerve.	2
Week 5	Preclinical application of regional anesthesia in lower jaw using models - demonstration of patient-doctor position during application of regional anesthesia and V-anesthesia of jaw.	2
Week 6	Preclinical application of unconventional techniques of anesthesia in upper and lower jaw: demonstration of PDL anesthesia, intraosseous anesthesia.	2
Week 7	Patient reception. Anamnesis and clinical examination. Preparing a patient for local anesthesia. Psychological preparation, premedication, operative site preparation.	2
Week 8	Clinical application of terminal anesthesia.	2
Week 9	Clinical application of mandibular anesthesia.	2
Week 10	Application of regional anesthesia in upper jaw.	2
Week 11	Application of regional anesthesia in lower jaw.	2
Week 12	Treatment of local complications during and after application of various techniques of terminal and region anesthesia. Demonstration of treatment of collapsed patient and patient with syncope.	2
Week 13	Intramuscular sedation. Intravenous sedation.	2
Week 14	Preparation for general anesthesia, general anesthesia techniques and post anesthesia patient handling.	2
Week 15	Reanimation.	2
Week 17	Written learning assessment by means of a test.	
Week 18-20	Makeup exam date for students who have not passed the written exam.	

THIRD YEAR ELECTIVE COURSES

Code: SFSIM0507E		COURSE TITLE: NEUROPSYCHIATRY	
Level of study: undergraduate	Year: III	Semester: V	ECTS credits: 6
Course status: elective		Total classes: 45	
Professor in charge:			
Entry requirements: entry requirements correspond to the legal regulations of studying in University of Sarajevo			
1. Course objectives:	<ul style="list-style-type: none"> - to teach dental students to be able to access and establish contact with a neuropsychiatric patient, to identify and accurately diagnose mental and neurological diseases, to make a diagnostic search plan and a therapeutic program for the purpose of rapid and effective treatment. - to introduce students with pathophysiological and pathoanatomical basics of the most common neuropsychiatric disorders, modern therapeutic possibilities, prognosis of neuropsychiatric disorders, and possible prevention. 		
2. Course purpose:	Acquire basic theoretical knowledge in the field of neuropsychiatry and enable the student of dentistry to use the learned knowledge in the future practice in order to recognize neuropsychiatric disorders according to the applicable classification system, which will help him in communication, differential diagnostic thinking and treatment of patients with oral diseases.		

<p>3. Learning outcomes:</p>	<p>Through this course, the student will acquire the following knowledge:</p> <p>1. Anatomy, physiology and pathophysiology of the central nervous system (CNS). Anamnesis and clinical examination of neurological patients Basic syndromes in neurology Consciousness and disorders of consciousness</p> <p>2. Cerebrovascular diseases Infectious diseases of CNS Emergency conditions in neurology</p> <p>3. Crises of consciousness, epilepsy, syncope Autoimmune disorders of CNS Multiple sclerosis Myasthenia</p> <p>4. Headache (idiopathic and symptomatic) Migraine (epidemiology, clinical picture, therapy)</p> <p>5. Intracranial pressure syndrome Tumors of the nervous system Degenerative and metabolic diseases in neurology</p> <p>6. Traumas of the nervous system Craniocerebral injuries and consequences Spinal cord trauma</p>
	<p>7. Neurological entities that lead to disturbances of swallowing, speech and language mobility</p> <p>8. Cranial nerves and their diseases with a special focus on the area of the head and face.</p> <p>9. History of psychiatry Etiology and classification of mental disorders The mutual relationship between patients and health care workers</p> <p>10. Psychic functions and disorders (awareness, affectivity, thinking, attention)</p> <p>11. Psychic functions and disorders (observation, memory, will, instincts)</p> <p>12. Schizophrenia, schizotypal and delusional disorders</p> <p>13. Affective disorders (manic episode, bipolar affective disorder, depressive episode, persistent affective disorder).</p> <p>14. Neurotic, stress-related and somatoform disorders. Reaction to stress and adjustment disorders</p> <p>15. Organic and symptomatic mental disorders (dementia, delirium). Personality disorders.</p>
<p>4. Learning methods:</p>	<p>Course content is presented in the form of:</p> <ul style="list-style-type: none"> - lectures - practical exercises

<p>5. Methods for student knowledge assessment</p>	<p>Final exam</p> <p>The theoretical part of the final exam It is a written test containing 20 theoretical questions (10 from neurology and 10 from psychiatry) and is valued by 80 points in total. The correct answer to each question is valued by 4 points. In order to pass this exam, the student must score at least 41 points.</p> <p>Practical part of the final exam It involves assessing the accepted skills of taking anamnesis, and of psychological and physical examination of neurological and psychiatric patients. Evaluation of the acquired skills is done through the fulfillment of 20 tasks previously defined in the checklist. Each exact task from the checklist is valued by one point. The maximum number of points that a student can score is 20. In order to pass this exam, the student must score at least 11 points. The scored number of points is added to the other ones in forming the final grade.</p> <p>Final grade is formed as follows: 10 (A) - 95-100 points; 9 (B) - 85-94 points; 8 (C) - 75-84 points; 7 (D) - 65-74 points; 6 (E) - 55-64 points; 5 (F, FX) - under 55 points.</p>
<p>6. Recommended literature</p>	<ol style="list-style-type: none"> 1. Ropper AH, Samuels MA (eds). Adams and Victor's Principles of Neurology. 9th edition. McGraw-Hill Professional; 2009. 2. Drislane FW, Banatar B, Chang M, Acosta JA, Tarulli A, Caplan LR. Neurology. 3rd edition. Lippincott Williams&Wilkins; 2009. 3. Semple D, Smith R. Oxford Handbook of Psychiatry. 3rd edition. Oxford: Oxford University Press; 2013. 4. Lieberman JA, Tasman A. Handbook of Psychiatric Drugs. John Wiley & Sons; 2006.
<p>7. Exam questions and weekly teaching plan</p>	<p>Exam questions and weekly teaching plan are corresponding to the course learning outcomes and knowledge assessment methods.</p>

Code: SFSIM0602E		COURSE TITLE: OPHTHALMOLOGY	
Level of study: undergraduate	Year: III	Semester: VI	ECTS credits: 6
Course status: elective		Total classes: 45	
Professor in charge:			
Entry requirements: entry requirements correspond to the legal regulations of studying in University of Sarajevo			
1. Course objectives:	<p>Course content enables students to acquire theoretical and practical knowledge from the subject, which implies:</p> <ul style="list-style-type: none"> - knowledge of basic historical data relevant to ophthalmology, and its division into subdisciplines; - the acquisition of knowledge and skills of ophthalmologic examination and ophthalmologic diagnostics; - acquiring elementary knowledge from refraction, strabismology, glaucoma; - acquiring knowledge of inflammatory diseases of the front and back ocular segment; - acquiring knowledge about the etiology and the types of the cataract as well as about modern operational methods of its treatment; - acquiring basic knowledge of vascular diseases of ocular fundus as well of knowledge of endocrine ophthalmology and neuro ophthalmology; - introduction with the most common eye and orbit injuries and eye tumors; - informing students about the types of surgical procedures that are most often performed in ophthalmology, as well as the use of lasers in ophthalmology. 		
2. Course purpose:	<p>Considering the mutual proximity of the ocular and oral cavity regions, and their communication through the nasal cavity, sinus, blood vessels, it is clear that the diseases of the mouth and teeth are reflected on the structure of the eye and eye cavity.</p> <p>The purpose of the course is to introduce students of dentistry with basic knowledge in ophthalmology, with special emphasis on those diseases that are causally related to diseases of the mouth and teeth.</p>		
3. Learning outcomes:	<p>Students will overwhelm the basics of ophthalmological examination, diagnosis of eye diseases, information on the most common and most significant eye diseases, and the ways of their treatment.</p> <p>A special emphasis in mastering knowledge and skills will be given to tooth and mouth diseases that directly reflect on eye health. Proper prevention and treatment of certain dental problems will prevent the development of severe most commonly inflammatory conditions on the eye.</p>		

4. Learning methods:	<p>Course content is presented in the form of:</p> <ul style="list-style-type: none"> - lectures ex cathedra, with interactive learning for all students - presentation and analysis of student seminars - practical exercises for groups of no more than 10 students
	<p>Note: interactive learning implies a theoretical examination of students' pre-knowledge in the area that will be presented for 10 minutes, followed by discussion and subsequent clarifications after presented lecture for a duration of 10 minutes.</p>
5. Methods for student knowledge assessment	<p>Examination of the course will be taken in written form.</p> <p>Practical knowledge is checked using a check list. The maximum number of points that student can score is 10, and 6 points is minimal for passing on the practical part of the exam.</p> <p>The maximum number of points that student can score in the theoretical part of the final exam is 90, and 45 points is minimal for passing on the theoretical part of the exam.</p> <p>Final grade is formed as follows: 10 (A) - 95-100 points; 9 (B) - 85-94 points; 8 (C) - 75-84 points; 7 (D) - 65-74 points; 6 (E) - 55-64 points; 5 (F, FX) - under 55 points.</p>
6. Recommended literature	<ol style="list-style-type: none"> 1. Gerstenblith AT, Rabinowitz MP. The Wills Eye Manual Office and Emergency Room Diagnosis and Treatment of Eye Diseases. 16th edition. Philadelphia: Wolters Kluwer. Lippincott Williams & Wilkins; 2012. 2. The Eye MD Association. Fundamentals and Principles of Ophtalmology. American Academy of Ophtalmology; 2013. 3. Kanski JJ, Bowling B. Clinical Ophtalmology: A Systematic Approach: Online and Print. 7th edition. Elsevier-Saunders; 2011. 4. Ehlers JP, Shah CP. The Wills Eye Manual Office and Emergency Room Diagnosis and Treatment of Eye Disease. 15th edition. Philadelphia: Wolters Kluwer. Lippincott Williams & Wilkins; 2008.
7. Exam questions and weekly teaching plan	<p>Exam questions and weekly teaching plan are corresponding to the course learning outcomes and knowledge assessment methods.</p>

Code: SFSIS0603E	Course title: PUBLIC HEALTH		
Level: undergraduate	Year: III	Semester: VI	ECTS credits:6
Status: Optional			Total classes: 45 (30+15)
Proffesor in charge:	Head of department		
Entry requirements: No entry requirements for attending the course			
1. Goals	<p>To get basic knowledge about public health factors impact on health and disease.</p> <p>Knowing and understanding organisation, functioning and financing of health system and health care.</p> <p>To get acquainted with meaning and the role of the law legislative in health care with aim to protect the rights of the health care providers and the patients.</p>		
2. Puurpose of Course	The goal is to train the student to accept socio-medical approach of observing and researching complex phenomenas of health and disease, what is going to doctors of dental medicine to improve health care of population		
3. Learning outcomes	<p>After finishing the course, the student should know to:</p> <ul style="list-style-type: none"> • Identify population public health risk factors at local and national level, with special attention given to oral diseases • Understand health care organisation and health care providers who participate in development of oral health improvement strategies • Know financement concepts of health care insurance in BH • Understand legislative, accurate standards and normatives related to dental care 		
4. Teaching methods	<ul style="list-style-type: none"> • Lectures ex catedra for all students • Practical courses – in studen's groups according to standard • Interactive learning for all students (during lectures and practical courses) 		

5. Knowledge assessment methods	<p>Final record will be formed based on following elements:</p> <p>Obligate presence and activity during the course, form 45% of the total mark (student fullfill this criteria if he was not obtaining maximally 20% of course)</p> <p>The final exam is in the form of essay, with can bring maximally 50 poits and minimaly 27 points. It contains 5 essay questions (each correct answer gives 10 points) and forms 55% of the final mark.</p> <p>Mark scale:</p> <p>A (10) = 95- 100 B (9) =85-94 C (8) =75-84 D (7) =65-74 E (6) = 55-64 F bellow 55</p>
6. Literature: Students will learn for the exam from the handouts of the lectures.	

Week	Course form and content PUBLIC HEALTH	Number of hours
Week 1.	Lectures: Introduction in public health, definitions, history, development, basic therms, importance	2
	Practice: Practice and methodology description	1
Week 2.	Lectures: Theoretical health concept and the most important health influence factors	2
	Practice: Analyse of different health model concepts	1
Week 3.	Lectures: Health politic	2
	Practice: Health politic analyse, identification of leading problems and obstacles and their possible solutions	1
Week 4.	Lectures: Population health assessment and social deseases	2
	Practice: Epidemiological and statistical principes in population health analyse	1
Week 5.	Lectures: Health care	2
	Practice: Health care of specific population groups	1
Week 6.	Lectures: Public health organisation	2
	Practice: Organisation and work of health institutions.	1

Week 7.	Lectures: Health care systems and financement. Economical aspect of health and disease Practice: Financement models of health care	2 1
Week a 8.	Lectures: Klasifikation systems in health care. International clasification of diseases, injuries and causes of deaths Practice: Klasifikation systems in health care. International clasification of diseases, injuries and causes of deaths	2 1
Week 9.	Lectures: Management in health care Practice: Management characteristics in health care institutions	2 1
Week 10.	Lectures: Quallity in health care Practice: Evaluation and control quallity in dental care	2 1
Week 11.	Lectures: Planning for health Practice: Resurses and equipment planning in health care institutions	2 1
Week 12.	Lectures: Health promotion Practice: Examples of individual and public motivation in oral health	2 1
Week 13	Lectures: Education in health care Practice: Content and methods of education in health care	2 1
Week 14.	Lectures: Beheviour and health Practice: Model of health behaviour as basis for educational health interventions	2 1
Week 15.	Lectures: Legislative in health care and dental care Practice: Legislative analyse related to health care	2 1
Week 17.	Final exam	
Week 18.- 20.	Final exam/retake	

Code: SFSIM0604E		COURSE TITLE: INFECTIOUS DISEASES	
Level of study: undergraduate	Year: III	Semester: VI	ECTS credits: 6
Course status: elective		Total classes: 45	
Professor in charge:			

Entry requirements: all courses from the previous V semester have to be passed

1. Course objectives:

The objective of the course is to introduce students of dentistry with theoretical and practical knowledge in the field of infectology, which means:

1. knowledge from general infectology:

- infectious diseases today, perspectives, biological warfare - the etiology of infectious diseases
- general pathogenesis of infection (infection emergence)
- defense of the organism from pathogens
- clinical course, forms and syndromes in infectious forms
- anamnesis in infectious diseases
- clinical examination of infectious patients
- diagnosis of infectious diseases
- differential diagnosis, prognosis
- treatment of infectious diseases
- prevention of infectious diseases

2. knowledge from special infectology

An infectology approach to the problem by specific criteria (definition, etiology, epidemiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, treatment, outcome).

- Infections of the central nervous system (bacterial meningitis, viral meningitis, post-traumatic-post-operative meningitis, focal infections of the brain), meningeal syndrome, encephalitic syndrome, lumbar puncture

- sinusitis, otitis media, mastoiditis

- infection of the cardiorespiratory system (infective endocarditis, syndrome of angina: bacterial tonsillopharyngitis, peritonsillar abscesses (Streptococcus pyogenes, Staphylococcus aureus, Pseudomonas aeruginosa, E. coli and other coliform bacteria, anaerobic bacteria as Fusobacterium fusiforme and spirochete Borrelia Vincenti; Neisseria gonorrhoeae, Corynebacterium diphtheriae; Yersinia enterocolitis; Treponema pallidum; chlamydia; mycoplasmas; viral angina: herpangina (enteroviruses), herpetic/aphthous gingivostomatitis (HSV), rhinovirus, coronal viruses, adenoviruses, parainfluenza and influenza viruses, rare angina causative agents CMV, EBV, coxsackie AV, HIV-1 virus; mushrooms; other causative agents.

acute laryngitis, acute laryngotracheobronchitis (croup) and bacterial tracheitis, epiglottitis

diphtheria, pertussis, epidemic parotitis, CMV, EBV pneumonia

- pneumococcal, staphylococcal, streptococcal, pneumonia caused by gram-negative microorganisms, chlamydia, legionella, viruses.

	<ul style="list-style-type: none"> - Liver infections (viral hepatitis, HBV vaccine, hepatitis markers) - skin, soft tissue, muscle and bone infections (erysipelas, furuncle, carbuncle, cellulitis, phlegmon, malignant facial staphylococcal infection, necrotizing fasciitis of specific anatomical forms, myonecrosis, osteomyelitis). - rash fevers (scarlet, varicella, herpes zoster, measles, rubella). - HIV / AIDS, prevention, the procedure in the accidental exposures of health care professionals - sepsis, dental aspects of the emergence of sepsis - candidiasis, febrility of unknown origin - focal disease - anaerobic infections and intoxications (tetanus, botulism, gas gangrene), antitetanus protection - infections in pregnancy, age and infection, diabetes mellitus and infections - intra-hospital infections (IHI), measures of prevention and suppression of IHI in dental practice
<p>2. Course purpose:</p>	<p>The purpose of the course is to introduce dental students with basic knowledge in the field of infectology, which is the foundation and impetus for further upgrading of knowledge in practice with the focus on those diseases that are causally related to diseases of the mouth and teeth.</p> <p>In lectures, interactive classes and practical exercises, theoretical knowledge is adopted and the chosen clinical manifestation disorders are overcome beside the patient's bed.</p>
<p>3. Learning outcomes:</p>	<p>Upon completing the course, the student must overwhelm the basics of the infectology approach to the patient (anamnesis that includes an epidemiological survey, physical examination, etiopathogenesis, differential diagnosis, diagnosis, general treatment approach). A special emphasis in mastering knowledge and skills will be given to diseases that are causally related to diseases of the mouth and teeth. Proper prevention and treatment of certain dental problems will prevent the development of some infectious diseases.</p>
<p>4. Learning methods:</p>	<p>The course content will be presented in the form of:</p> <ul style="list-style-type: none"> - interactive lectures - practical exercises <p>Note:</p> <p>Interactive learning can be observed from several aspects: in the chamber ambience to check the student's knowledge of the course content that will be presented; animating students for discussions and subsequently clarifying unclear facts after the presented lecture; simulating a certain medical infectious and dental problem and the student's attempt to solve it, based on the given facts from the ex cathedra lectures data.</p>

5. Methods for student knowledge assessment	<p>The final exam consists of a practical and theoretical part. In the practical part of the exam, the student is tasked to diagnose medical problem based on the adopted infectology approach of the patient.</p>
	<p>If the student passes the practical part of the exam, he / she will be allowed to take the theoretical part.</p> <p>Theoretical part of the exam is in written form, a test that consists of 30 questions. The first 5 questions in the test are eliminatory. Tests are compiled for each exam term, divided into groups A and B. The test is considered as passed if at least 60% of the questions is answered correctly.</p> <p>The final exam is valued by 50% of the overall grade. Regular attendance for lectures is valued by 25% of the overall grade. Regular practical exercise attendance is valued by 25% of the overall grade.</p> <p>Upon completion of the semester, a student can score a maximum of 100 points.</p> <p>Final grade is formed as follows: 10 (A) - 95-100 points; 9 (B) - 85-94 points; 8 (C) - 75-84 points; 7 (D) - 65-74 points; 6 (E) - 55-64 points; 5 (F, FX) - under 55 points.</p>
6. Recommended literature	<ol style="list-style-type: none"> 1. Southwick, Frederick. Infectious Diseases A Clinical Short Course 3. 3rd edition. New York: McGraw-Hill Professional; 2013. 2. Braunwald E (ed). Harrison's Principles of Internal Medicine. 17th edition. New York: McGraw-Hill; 2008.
7. Exam questions and weekly teaching plan	<p>Exam questions and weekly teaching plan are corresponding to the course learning outcomes and knowledge assessment methods.</p>

FOURTH YEAR COMPULSORY COURSES

CODE: SFSOS0701E	COURSE TITLE: ORAL SURGERY		
Level: undergraduate	Year: IV	Semester: VII and VIII	ECTS credits: 10
Status: obligatory			Total classes: 150 (60+90)
LECTURER IN CHARGE:		Head of Department	
Requirements for taking the course: Requirements regulated by the Rule book on studying at the first cycle of studies at the University of Sarajevo.			
1. Course objectives	After the course (lectures and practical classes) and upon finalization of the exam student should: know instruments for tooth extraction, know techniques for tooth extraction in upper and lower jaw, know mechanisms of normal extraction wound healing, therapy options for complications during and after tooth extraction. Student will be able to diagnose all forms of odontogenic infections (soft and osseous tissues), recognize basic types of infection – abscesses and flegmonae of orofacial region, infection of fascial spaces and pathways of odontogenic infection spreading.		

<p>2. Purpose of the course</p>	<p>Student should be skilled in basic steps in treatment of odontogenic infection. Student should be able to diagnose perforated maxillary sinus, diagnose foreign body in sinus, recognize sinusitis of odontogenic etiology and know conservative therapy of oroantral communication. Student will be able to diagnose all forms of periodontal tissue and alveolar bone injuries and apply adequate therapy using up-to-date immobilization techniques.</p> <p>They will learn modern methods and techniques of traumatized tooth immobilization, methods and principles of tooth replantation and transplantation. Student will gradually master techniques of plexus and regional anesthesia in upper and lower jaw as well as techniques of tooth and root extraction. They will continue to improve these skills during their education. Upon completion of theoretical and practical classes student will be able to: independently do interrupted and uninterrupted suture, make indication for root resection and prepare root canal for the procedure, diagnose most common periapical lesions, know which diagnostic tools to use in order to diagnose odontogenic cyst, recognize changes in oral cavity which can unable making of prosthetic work, know how to diagnose impacted, subimpacted, retained and supernumerary tooth and suggest adequate therapy, know indications and contraindications for gingivectomy, know how to diagnose benign tumors and suspect if its precancerous state/malignant tumor.</p>
<p>3. Learning outcomes</p>	<p>After the course (lectures and practical classes) and upon finalization of the exam student should: know instruments for tooth extraction, know techniques for tooth extraction in upper</p>

	<p>and lower jaw, know mechanisms of normal extraction wound healing, therapy options for complications during and after tooth extraction. Student will be able to diagnose all forms of odontogenic infections (soft and osseous tissues), recognize basic types of infection – abscesses and flegmonae of orofacial region, infection of fascial spaces and pathways of odontogenic infection spreading. Furthermore, student should be skilled in basic steps in treatment of odontogenic infection. Student should be able to diagnose perforated maxillary sinus, diagnose foreign body in sinus, recognize sinusitis of odontogenic etiology and know conservative therapy of oroantral communication. Student will be able to diagnose all forms of periodontal tissue and alveolar bone injuries and apply adequate therapy using up-to-date immobilization techniques. They will learn modern methods and techniques of traumatized tooth immobilization, methods and principles of tooth replantation and transplantation. Student will gradually master techniques of plexus and regional anesthesia in upper and lower jaw as well as techniques of tooth and root extraction. They will continue to improve these skills during their education. Upon completion of theoretical and practical classes student will be able to: independently do interrupted and uninterrupted suture, make indication for root resection and prepare root canal for the procedure, diagnose most common periapical lesions, know which diagnostic tools to use in order to diagnose odontogenic cyst, recognize changes in oral cavity which can unable making of prosthetic work, know how to diagnose impacted, subimpacted, retained and supernumerary tooth and suggest adequate therapy, know indications and contraindications for gingivectomy, know how to diagnose benign tumors and suspect if its precancerous state/malignant tumor.</p>
4. Teaching methods	Interactive lectures, practical exercises, work in small groups, seminar works with discussion, continuous assessment of knowledge.
5. Methods of learning assessment	<p>Regular attendance lectures is 25% of total grade. Regular attendance exercise is 25% of total grade. Seminar work is 10% of the total grade. Final exam – oral exam. During the semester: oral exam. Exam: 1. Practical 2. Oral Final grade will be formed of following elements: - obligatory presence at the lectures – 30 points, - one written paper complemented with oral presentation - 20 points, - Final exam consists of theoretical part which is taken orally and practical exam. GRADING SCHEMA: A (10) = 95 – 100 B (9) = 85 - 94</p>

	<p>C (8) = 75 - 84 D (7) = 65 - 74 E (6) = 55 – 64* F Student that score 55-69% can take additional exam. Students that score below 55% have to take the course again.</p>
6. Literature:	<p>MANDATORY:</p> <ol style="list-style-type: none"> Peterson L, Ellis E, Hupp J, Tucker M. Contemporary Oral and Maxillofacial Surgery. 5th Edition, 2008. 4. Robinson P. Tooth Extraction: A Practical Guide. 2000; reprinted 2008. Kučanski B, Sulejmanagić H, Mustagrudić D, Gojkov T. Oralna hirurgija, I part, II edition, editor: Sulejmanagić H. Sarajevo: USBiH; 1998. Sulejmanagić H. Infekcije dentogene etiologije. Sarajevo: USBiH; 2000. Perović J, Jojić B. Oralna hirurgija. Beograd; 2000. Miše I. Oralna kirurgija. Zagreb: Jumena, 2. izd. ;1988. Knežević G. Oralna kirurgija II. Medicinska naklada, Zagreb 2003. <p>SUPPLEMENTARY:</p> <ol style="list-style-type: none"> Todorović et al, Oralna hirurgija; Izdavačko preduzeće Nauka, I edition, 2002. F.M. Andreasen, J.O. Andreasen, L.K. Bakland, M.T. Flores. Traumatske ozljede zubi, 2008. Vlastimir Petrović, Snježana Čolić. Periapikalne lezije. Beograd; 2001. <p>EXPANDED</p> <ol style="list-style-type: none"> Oral and maxillofacial Infections, 4th edition, Topazian Goldberg Hupp, 2002. Treatment planning for Traumatized Teeth, Mitsuhiro Tsukiboshi, Quintessence Pub Co, 2000 J. O. Andreasen, Frances M. Andreasen, Textbook and color atlas of traumatic injuries to the teeth, Edition: 4, illustrated, revised, Published by Blackwell Munksgaard, 2007 Fragiskos. D Fragiskos. Oral Surgery. Springer 2007.

Consultation with students every working day from 12 am to 2 pm.

LECTURES VIIth SEMESTER

NO	CONTENT	HOURS
Week 1	Tooth extraction. Instruments for tooth extraction: forceps and elevators.	2
Week 2	Tooth extraction: indications, contraindications, patient-doctor position during exodontia. Phases of tooth extraction.	2
Week 3	Tooth extraction according to tooth type. Multiple extractions. Tooth extraction and certain medical conditions.	2
Week 4	Extraction wound. Normal healing of extraction wound, prolonged healing of the wound.	2

Week 5	Complications during tooth extraction: crown fracture, root fracture, injury of adjacent tooth, soft tissue injury, alveolar process injury, maxillary sinus perforation, injury of mandibular canal, mandible luxation and fracture, accidental extraction of permanent tooth bud.	2
Week 6	Postextraction complications: bleeding, dolor post extractionem, alveolitis, definition, etiology, therapy.	2
Week 7	Definition, etiology, diagnosis and differential diagnosis of odontogenic inflammation of orofacial region. Infection types: abscess, phlegmon. Predilection sites for abscess and phlegmon.	2
Week 8	Acute odontogenic infection. Stages of odontogenic infection. Subperiosteal and submucous abscess. Phlegmon of the mouth floor. Odontogenic infection therapy – physical and medicamentous approach. Therapeutic use of antibiotics.	2
Week 9	Odontogenic abscess – oral cavity spaces – sublingual, submandibular, submental, buccal, pterygomandibular, pterygopalatine, parapharyngeal, retropharyngeal, parotidomasseteric, infratemporal, temporal and tongue abscess. Surgical therapy of odontogenic infection of the orofacial region. Principles of intraoral and extraoral incision-drainage.	2
Week 10	Odontogenic infection of the orofacial spaces which are not anatomically defined: subperiosteal palatinal space, peritonsillar space, basis of the upper lip, infraorbital spaces, periorbital, mental and submasseteric spaces.	2
Week 11	Odontogenic infection pathways. Complications of odontogenic infection of orofacial region. Differential diagnosis of swelling in cervico-orofacial region.	2
Week 12	Osteomyelitis of the jaws – etiology and pathogenesis. Acute osteomyelitis of the lower jaw. Acute osteomyelitis of the upper jaw. Chronic osteomyelitis of the jaws. Non-pyogenic chronic osteomyelitis. Specific osteomyelitis.	2
Week 13	Odontogenic inflammation of the maxillary sinus. Odontogenic etiological factors that cause maxillary sinus inflammation. Foreign bodies in maxillary sinus as a result of dental intervention. Diagnosis, clinical picture and therapy of the odontogenic sinusitis.	2
Week 14	Oroantral and Oronasal communications and fistulae: etiology, clinical picture and diagnosis.	2
Week 15	Oroantral and oronasal communications and fistulae: therapy, surgical methods.	2

PRACTICALS

NO	CONTENT	HOURS
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Week 1	Tooth extraction – definition, introduction to instruments for extraction: forceps and elevators for upper and lower jaw, parts of the instruments, handling with the instruments, similarities and differences, choosing the adequate instrument. Understanding indications for tooth extraction using radiographic images and photos from the Department archive. Demonstration of the correct patient/therapist position (model-student) during tooth extraction. Students should practice as well among each other. Demonstration of the phases of tooth extraction on models.	3
Week 2	Structure of maxilla and mandible and its significance for tooth extraction. Tooth morphology and its significance for tooth extraction. The most common medical conditions in emergency care: ischemic heart diseases (myocardial infarction, pectoral angina), congenital heart diseases, rheumatic fever, artificial valves, thromboembolic diseases, heart failure, asthma, chronic bronchitis, epilepsy, cerebrovascular insult, blood dyscrasia, anticoagulant therapy, diabetes, kidney failure, hypo and hyperthyroidism, liver diseases.	3
Week 3	Discussing extraction wound features: treatment of extraction wound, blood clot and its significance in physiological wound healing, normal wound healing: phases of healing (schematic), histological phases of normal wound healing (schematic).	3
Week 4	Discussing complication during extraction using radiographic images and photos from the department archive. Anatomy of the maxillary sinus: embryology, physiology, relation with upper teeth roots, demonstration of the signs of perforated sinus – Valsalva test. Anatomic relation of lower teeth roots and mandibular canal; schematic display of the relation between primary molar and permanent tooth bud, correct forceps handling so the permanent tooth bud do not get extracted.	3
Week 5	Demonstration bleeding management options (biological, mechanical and physical). Explaining differential diagnosis of dolor post extractionem and alveolitis. Demonstrating alveolitis management options: alvogyl, ZnO-eugenol dressing.	3
Week 6	Clinical practicals – real-life patients. Assistant does the clinical examination, anamnesis, radiographic and laboratory analysis, makes treatment plan. Intervention is demonstrated by the assistant while explaining in detail application of plexus anesthesia in upper and lower jaw. Tooth/Root extraction is, with in depth explanation, done by assistant as well.	3
Week 7	Clinical practicals – real-life patients. Assistant demonstrates application of plexus anesthesia in upper and lower jaw. Planned intervention -tooth/root extraction, intraoral incision etc. is done by assistant. Therapeutic and prophylactic use of antibiotics in oral surgery is explained.	3
Week 8	Clinical practicals – real life-patients. Assistant demonstrates application of plexus anesthesia in upper and lower jaw. Planned intervention - tooth/root extraction, intraoral incision etc. is done by assistant. Assistant explains the procedure of drain preparation. Assistant explains the procedure of iodoform gauze preparation.	3

Week 9	Clinical practicals are conducted on real- life patients. Student assisted by assistant applies plexus anesthesia in upper and lower jaw. Furthermore, he/she extracts indicated tooth/root with help of assistant. Assistant explains and demonstrates regional mandibular anesthesia-mandibular block. Assistant demonstrates incision lines in treatment of odontogenic abscesses. Assistant explains basic principles of incision and drainage of the abscess.	3
Week 10	Clinical practicals are conducted on real-life patients. In the presence of assistant student independently applies plexus anesthesia in both jaws and mandibular block. In the presence of assistant, he/she performs tooth extraction in upper and lower jaw. Assistant explains topographic landmark for injection site in infraorbital and tuber anesthesia. Assistant explains every diagnosis relevant for their skills and knowledge in Latin.	3
Week 11	Clinical practicals are conducted on real-life patients. In the presence of assistant student independently applies plexus anesthesia in both jaws and mandibular block. Assistant explains radiographic picture of odontogenic infections (Topic: Radiographic diagnostic of odontogenic inflammation). He/she delivers on topic: Laboratory data of importance for diagnosis of odontogenic infection of the orofacial region, hematologic laboratory tests, histopathologic laboratory tests, microbiological laboratory tests. Assistant explains application, dosage and combining medicamentose therapy in odontogenic infections.	3
Week 12	Clinical practicals are conducted on real-life patients. In the presence of assistant student independently applies plexus anesthesia in both jaws and mandibular block. In the presence of assistant, he/she performs tooth extraction in upper and lower jaw. Assistant delivers on topic: Radiologic diagnostic of odontogenic inflammatory changes of maxillary sinus, radiologic diagnostic of foreign body in sinus. He/she analyses and explains radiologic images of maxillary sinus inflammation and presence and background of foreign body in the sinus. Assistant emphasizes specificities of the clinical findings in odontogenic sinusitis.	
Week 13	Clinical practicals are conducted on real-life patients. In the presence of assistant student independently applies plexus anesthesia in both jaws and mandibular block. In the presence of assistant, he/she performs tooth extraction in upper and lower jaw. Assistant explains methods of treatment of odontogenic sinusitis.	3
Week 14	Clinical practicals are conducted on real-life patients. In the presence of assistant student independently applies plexus anesthesia in both jaws and mandibular block. Assistant deliver on topic: Oroantral communication and explains the most common reasons for its occurrence, diagnostic methods and ambulant-conservative approach in treatment of oroantral communications. Assistant explains role and means of application of iodoform gauze in oroantral communications and fistulae. He/she gives basic information about surgical methods for closure of maxillary sinus.	3

Week 15	Clinical practicals are conducted on real-life patients. In the presence of assistant student independently applies plexus anesthesia in both jaws and mandibular block. In the presence of assistant, he/she performs tooth extraction in upper and lower jaw.	3
Week 17	Written learning assessment by means of a test.	
Week 18-20	Makeup exam date for students who have not passed the written exam.	
	ASSESSMENT During the semester in form of clinical colloquium.	

LECTURES 8TH SEMESTER

NO	CONTENT	HOURS
Week 1	Features of surgical cuts and sutures in oral cavity. Types of sutures. Apicoectomy. Definition, indications and contraindications for apicoectomy. Tooth preparation for apicoectomy, mechanical and chemical root canal preparation, orthograde and retrograde obturation of the canal.	2
Week 2	Apicoectomy. Anesthesia in apicoectomy, operative process and postoperative treatment. Individual characteristics of apicoectomy by tooth group and postoperative complications.	2
Week 3	Impacted and supernumerary teeth. Diagnosis and differential diagnosis. Classification and complications of impacted teeth.	2
Week 4	Surgical removal of impacted teeth. Surgical-orthodontic treatment of impacted teeth.	2
Week 5	Cysts of the oral cavity. Definition and classification. Diagnosis and differential diagnosis. Clinical phases of the cyst.	2
Week 6	Odontogenic cysts. Inflammatory radicular cysts, apical and lateral. Developmental cysts. Solitary and fissural cysts.	2
Week 7	Therapy of small-sized cysts and basic principles of therapy of large cysts.	2
Week 8	Traumatic injuries of dentoalveolar system. The most common causes of primary and permanent teeth injuries. Treatment of patient with tooth injury. Classification of injuries.	2
Week 9	Root fractures in permanent teeth. Permanent teeth root fracture therapy. Pathohistological aspect of the root fracture healing. Periodontal tissue injuries – classification and diagnosis.	2
Week 10	Therapy of the loosened teeth – types of immobilization. Acrylate (Pfeifer) splint, wire-resin splint. Fracture of the alveolar process.	2
Week 11	Replantation, transplantation and implantation. Therapy of avulsed tooth by replantation.	2
Week 12	Healing of the replanted tooth. Differences in mechanism of osseous healing in implantation, replantation and transplantation. Replanted teeth prognosis. Root resorption after replantation – types of resorption.	2

Week 13	Preprosthetic surgery. Terminology and systematization of physiological and pathological conditions, alveolar ridge atrophy. Hard and soft tissue hypertrophy. Surgical therapy of hypertrophic conditions. Exostoses, torus palatinus, torus lingualis, tuberosity reduction, frenectomy, fibromatosis, foramen mentale reposition. Vestibule profundation.	2
Week 14	Benign tumors of the oral cavity. Epidermal epithelial tumors, Connective tissue tumors, Fat tissue tumors. Bone tumors, Cartilage tumors and vascular tumors.	2
Week 15	Gingivectomy. Classic gingivectomy, radical gingivectomy, Ciezinsky-Widmann-Neumann. Gingivo alveolectomy.	2

PRACTICALS

NO	CONTENT	HOURS
Week 1	Students continue improving their techniques of local and regional anesthesia as well as tooth extraction. Students are demonstrated	3

	photos with incision cuts and explained indications for the cuts using case studies. Surgical instruments and mechanism of their use are demonstrated. Basic suturing techniques are demonstrated and students are encouraged to practice.	
Week 2	Clinical practicals are conducted on real-life patients. Students continue improving their techniques of local and regional anesthesia as well as tooth/root extraction. Assistant delivers on topic: Basic surgical set and instruments for suturing and explains content of mandatory surgical set for suturing, He/she teaches students basic principles and techniques of suturing and different types of surgical sutures.	3
Week 3	Students continue improving their techniques of local and regional anesthesia as well as tooth/root extraction. Patients planned for apicoectomy are examined on students' practicals. Students are being introduced to surgical protocol (standards required for oral cavity in order to proceed to apicoectomy, how patients are informed about the procedure of apicoectomy). Student is trained to conduct detailed examination of the patient in order to make diagnosis and differential diagnosis. They practice writing diagnoses in Latin and writing referrals. Student is included in root canal preparation for apicoectomy.	3
Week 4	Students continue improving their techniques of local and regional anesthesia as well as tooth/root extraction. Students are taught to recognize periapical lesion on periapical radiographic images or ortopantomograms. They visit operating room in smaller groups where they are shown surgical instruments for apicoectomy, preparation of the patient for the surgical procedure and preparation of the surgeon for the procedure. Apicoectomy with its features is demonstrated on patient.	3

Week 5	Students continue improving their techniques of local and regional anesthesia as well as tooth/root extraction. By analyzing periapical images and ortopontomograms students practice classification of impacted teeth, they visualize infrabony pockets, presence of cysts, developmental stage and position of roots. Furthermore, by analyzing radiographic images they practice diagnosing supernumerary and impacted teeth. They try to assume position of supernumerary or impacted tooth using knowledge from radiology. Students are taught to accurately diagnose impaction and make correct indication for extraction.	3
Week 6	Students continue improving their techniques of local and regional anesthesia as well as tooth/root extraction. Monitored by assistant students practice clinical oral examination, refer patient to radiographic imaging, diagnose impacted tooth. They learn symptoms of pericoronitis and discuss therapy options. Students are presented personal cases of surgical-orthodontic therapy – exposure of retained teeth followed by orthodontic treatment.	3
Week 7	Students continue improving their techniques of local and regional anesthesia as well as tooth/root extraction. They visit operating room in smaller groups where they are shown surgical procedure of removal	3

	of impacted teeth. They are introduced to instruments needed for this procedure.	
Week 8	Students continue improving their techniques of local and regional anesthesia as well as tooth/root extraction. They practice differentiation of cysts and granulomas on radiographic images. Students are trained to recognize clinical signs of cysts. They are presented personal cases of cystic lesions. Patients with radicular cysts are scheduled for students' practical classes. Students do thorough clinical examinations. They are trained to make proper diagnosis. They decide if better therapy option is cystectomy with apicoectomy or tooth extraction.	3
Week 9	Students continue improving their techniques of local and regional anesthesia as well as tooth/root extraction. They are presented various cases of odontogenic cysts. They are encouraged to discuss and apply acquired knowledge.	3
Week 10	Students continue improving their techniques of local and regional anesthesia as well as tooth/root extraction. Students are learnt to explore extraction wound, do curettage of extraction wound. Pay attention on the look of curettage periapical lesion and its look on radiographic image. They are taken in smaller group to operating room to see cystectomy. They are explained procedure of taking tissue for pathohistologic analysis and writing a referral to pathologist with all the necessary details.	3
Week 11	Students continue improving their techniques of local and regional anesthesia as well as tooth/root extraction. Assistant delivers on topic: Methods of immobilization traumatically loosened and extracted tooth. He explains how to make acrylate splint and wire-resin splint. Assistant explains and practically shows on volunteer method of immobilization using acrylate splint.	3

Week 12	Students continue improving their techniques of local and regional anesthesia as well as tooth/root extraction. They are trained to notice shape and irregularities of alveolar ridge. Evaluation of muscular and mucous attachments on alveolar ridge and their role in instability of prosthesis. Evaluation of relation between upper and lower jaw in vertical plane and their central relation – role of surgeon when there is not enough space for prosthetic rehabilitation. In partially edentulous patients, special attentions is given to teeth in supraocclusion and malpositioned teeth which are obstacle to making a prosthetic work. Indications for tooth extraction for prosthetic purposes are discussed. Importance of surgeon-prosthodontist cooperation is emphasized. Importance of radiographic diagnostic in preprosthetic surgery is stated.	
Week 13	Students continue improving their techniques of local and regional anesthesia as well as tooth/root extraction. Students are presented personal cases and cases from literature of benign and malignant tumors. They are shown pathohistological findings from personal cases.	3
Week 14	Students continue improving their techniques of local and regional anesthesia as well as tooth/root extraction. Students are presented	3
	personal cases and cases from literature of gingivectomy and gingivoplasty. They are shown instruments for these procedures.	
Week 15	Students continue improving their techniques of local and regional anesthesia as well as tooth/root extraction. Students keep track of the way assistant handles clinical cases. Assistant delivers on topic: Diagnosis and differential diagnosis in oral surgery.	3
Week 17	Written learning assessment by means of a test.	
Week 18-20	Makeup exam date for students who have not passed the final exam.	

CODE SFSOS0702E	COURSE TITLE: RESTORATIVE DENTAL MEDICINE		
Level :undergraduate	Year: IV	Semester:VII and VIII	Total ECTS credits: 9

Statu:s obligatory		Total classes: 165 (30+135)
Course leader	Head of the department	
Conditions for attending classes: The requirements are regulated by the Study Rules for the Integrated study program of the first and second cycle at the higher education institutions of the University of Sarajevo.		
Course description		
Objectives of the course	Through 15 hours of lectures students are given fundamentals knowledge in etiology, development, histopathological and clinical manifestations of caries lesions, caries diagnosis, classification of caries lesions, as well as epidemiology, immunology aspect and prevention of caries disease.	
Purpose of the course	Students will acquire basic knowledge in cariesology.	
Learning outcomes	Students are improving the following: examination and registration of teeth, work field isolation, placement of an interdental matrix and matrix holder, preparation of conventional cavities, cavity liner and amalgam placement, adhesive cavity preparation and placement of a composite filling with the appropriate protection of the dental pulp.	
Learning methods	Lectures Special clinical practicals	
Criteria for taking the course exam	Passed exam in Dental pathology - preclinic	
Knowledge assessment methods	During the semester students have a short written knowledge check. At the end of the 7 th semester, the students take a written partial exam. The final exam is taken at the end of the 8 th semester in the written form.	
Literature	<p>Required literature:</p> <p>1. Fejerskov O & Kidd E. Dental Caries. The Disease and its Clinical Management. I ed. Blackwell Munsgaard, Copenhagen, 2003.</p> <p>Recommended literature:</p> <p>1. Thylstrup A & Fejerskov O. Textbook of Clinical Cariology. II ed. Munksgaard, Copenhagen, 1994.</p>	
Rules of grading	See below	

Week	Restorative dental medicine VII semester	Course load
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Week 1.	Lecture: Caries Definition, Epidemiology and Classification Clinical practicals - Introductory exercises, familiarization with staff and work protocol	1 3
Week 2.	Lecture: The Role of Biofilm In Caries Etiology Clinical practicals – Introduction with the characteristics of a workplace in a clinical room	1 3
Week3.	Lecture: The Role of Host Factors In Caries Etiology: The Role of Saliva and Diet. Clinical practicals – Dental images analysis	1 3
Week 4.	Lecture: Dental Caries As A Dynamic Process Involving Cycles Of Mineral Loss (Demineralization) And Mineral Gain (Remineralization) Clinical practicals- Removal of soft deposits and teeth polishing	1 3
Week 5.	Lecture: Clinical/Histological Appearance Of Early Caries Lesions (White Spot) Clinical Practical	1 3
Week 6.	Lecture: Caries Detection And Caries Activity Assessment. Clinical practicals -Removal of soft deposits and teeth polishing	1 3
Week 7.	Lecture: Radiographic and Other Additional Diagnostic Methods in Caries Detection Clinical Practicals ¹	1 3
Week 8.	Lecture: Clinical Appearance And Histopathology Aspects Of The Developing Stages Of Caries Lesions In Dentine And Cement Clinical Practicals ¹	1 3
Week 9.	Lecture: Caries Prevention By Modifying The Biofilm (Mechanical, Chemical And Biological Biofilm Control) Clinical Practicals ¹	1 3
Week 10.	Lecture: Caries Management by Modifying Diet Clinical Practicals ¹	1 3
Week 11.	Lecture: Caries Prevention By Influencing Mineralization (Fluoride Application) Clinical Practicals ¹	1 3
Week 12.	Lecture: Dental Fluorosis. Differential Diagnosis Of Caries And Treatment Plan Clinical Practicals ¹	1 3
Week 13.	Lecture: Dental Erosion And Tooth Wear Clinical Practicals ¹	1 3
Week 14.	Lecture: Dentine Hypersensitivity Clinical Practicals ¹	1 3

¹ *Clinical practicals* - Students treat teeth with caries and other hard tissue tooth loss and debate treatment plans under the guidance of clinical instructors.

Week 15.	Lecture: Discussion of Clinical Cases.Course Summary Clinical Practicals ¹	1 3
Week 17.	Partial exam	1

Restorative Dental Medicine VIII Semester	
Course description	
Objectives of the course	Through 15 hours of lectures students are given fundamentals knowledge in minimal invasive cavity preparation, deep caries therapy, classification and treatment of acute tooth trauma, tooth discoloration and bleaching techniques.
Purpose of the course	The purpose of the clinical work is to train students for independent work with patients which implies intensive clinical work and adaptation of advanced theoretical and practical knowledge in the area of restorative dental medicine.
Learning outcomes	Students are improving all types of cavity preparations, placing a lining and/or adhesive system, followed by placement of a permanent restoration, finishing and shaping of a filling and its occlusal adjustment.
Learning methods	Lectures Special clinical practicals
Criteria for taking the course exam	Passed exam in Dental pathology - preclinic
Knowledge assessment methods	During the semester students have a short written knowledge check.
	<p>At the end of 8th semester, students have practical and written exam. Practical part of the exam is undertaken at the department of dental pathology and endodontics under the guidance of the examiner. Each student has to independently take anamnesis, perform clinical exam (take radiograph if necessary), determine diagnosis (state differential diagnosis) and determine therapy plan. After the examiner approves of the therapy plan, a student performs the procedure. After the completed procedure, the examiner evaluates practical work of the student and notes the grade.</p> <p>Written part of the exam: At the exam, the student draws papers containing questions.</p> <p>Students answer the question by marking the offered answers. If the student gives positive answers to 76% of questions or more, the written part of the exam is considered a pass.</p>

Literature	<p>Required literature:</p> <ol style="list-style-type: none"> 1. Mount GJ, Hume WR. Preservation and restoration of tooth structure. Mosby International Ltd. 1998. 2. Summit JB, Robbins JW, Hilton TJ, Schwartz RS. Fundamentals of operative dentistry: a contemporary approach: Quintessence Publishing Co Inc, 2013. <p>Recommended literature:</p> <ol style="list-style-type: none"> 1. Roberson TM, Heymann HO, Swift EJ. Sturdevant's Art and Science of Operative Dentistry, Mosby Inc, 2013. 2. Andreasen JO, Andreasen FM. Essential of traumatic injuries to the teeth; Munksgaard, Copenhagen 1990
Rules of grading	<p>The final grade is formed on the basis of the following factors:</p> <ul style="list-style-type: none"> - attendance at the lecture - maximum 10 points - attendance at practicals - maximum 10 points - short written test of knowledge- maximum 10 points (maximum 5 points per work) - partial exam - maximum 25 points - Practical part of the exam - maximum 20 points - final exam - maximum 25 points <p>10 (A) -95-100 points; 9 (B) - 85-94 points; 8 (C) - 75-84 points; 7 (D) - 65-74 points; 6 (E) - 55-64 points; 5 (F, FX) – not satisfied, less than 55 points</p>

Week	Restorative dental medicine VIII semester	Course load
Week 1.	Lecture: Minimally Invasive Therapy with Tooth-Colored Direct Restorative Materials Clinical Practicals ¹	1 6
Week 2.	Lecture: Contemporary Methods Of Caries Removal Clinical Practicals ¹	1 6
Week 3.	Lecture: Performing And Understanding The Indications Of Different Techniques Of Caries Tooth Structure Removal (Step-Wise Excavation, Indirect And Direct Pulp Capping). Clinical Practicals ¹	1 6

Week 4.	Lecture: Traumatic Injuries of Teeth and Supporting Structures - Descriptive Classification Clinical Practicals ¹	1 6
Week 5.	Lecture: Traumatic Injuries of Teeth and Supporting Structures – Treatment Clinical Practicals ¹	1 6
Week 6.	Lecture: The reactions of the dentin-pulp complex to the caries disease process and dental materials used during restorative procedures Clinical Practicals ¹	1 6
Week 7.	Lecture: Esthetic Considerations in Restorative Dentistry Clinical Practicals ¹	1 6
Week 8.	Lecture: Tooth Discolorations. Clinical Practicals ¹	1 6
Week 9.	Lecture: Conservative Management Of Discolored Teeth. Current Bleaching Modalities. Safety Concerns Of Bleaching. Clinical Practicals ¹	1 6
Week 10.	Lecture: Pain Pathways and Mechanisms of the Pulpodentin Complex Clinical Practicals ¹	1 6
Week 11.	Lecture: Pharmacologic Control of Dental Pain Clinical Practicals ¹	1 6
Week 12.	Lecture: Restoration Failure And Repair Clinical Practicals ¹	1 6
Week 13.	Lecture: Complex Dental Restorations Clinical Practicals ¹	1 6
Week 14.	Lecture: Course Summary Clinical Practicals ¹	1 6
Week 15.	Lecture: Course Summary Clinical Practicals ¹	1 6
Week 17.	Partial exam	1
Week 18.20.	Remedial	1

Code: SFSOS0703E	Course title: REMOVABLE PROSTHODONTICS		
Level:undergraduate	Year: IV	Semester: VII and VIII	Total ECTS credits: 16
Status: obligatory			Total classes: 210 (60+150)
Course leader:	Head of the Department		

Prerequisites for course attendance: Prerequisites have been set out by the Rules of Studies for the Integrated study program of the first and second cycles in establishments of higher education at Sarajevo University.

1.Aims of the course	The aim of Removable Prosthodontics course is to teach students the basic biomedical and technological knowledge and skills in removable prosthodontics upon which clinical work in conventional prosthetics treatment of completely or partially edentulous patients is based.
2.Purpose of the course	<p>Removable prosthodontics is a clinically oriented course which enables students of dentistry to master through analysis the current situation and selection of the best possible removable prosthodontic treatment and to independently conduct the conventional treatment of a completely or partially edentulous patient.</p> <p>The course consists of two modules: Module 1. Complete denture and Module 2. Partial denture.</p>
3. Learning outcomes	<p>After attending lectures the student acquires the theoretical knowledge about the clinical stages of manufacturing complete dentures, immediate dentures, acrylic dentures and removable partial dentures.</p> <p>During practical exercises:- Module 1.Complete denture–the student independently conducts the following clinical stages:obtains the patient's medical history and performs a clinical examination of a totally edentulous patient, takes the preliminary impressions of the upper and lower jaws, adapts a custom tray in the patient's mouth, takes a functionalimpression, determines the maxillo-mandibular relationship, makes trial of artificial teeth placementin wax and delivers dentures. Also, the student carries out check-ups and reocclusion upon delivering the complete dentures. The student is also familiarized with the clinical stages of manufacturing immediate dentures, repairs, practical application of a standard facebow and various techniques of reliningcomplete dentures. The student is also enabled to carry out a Rtg analysis and to indicate the pre-prothetic preparation of a completely edentulous patient.</p> <p>- Module 2. Partial denture - The student independently conducts the following clinical stages:obtains the patient's medical history and carries out a clinical examination of a partially edentulous patient, takes the preliminary impressions of the upper and lower jaws, analyses study models, determines the maxillo-mandibular relationship,makes trial of artificial teeth placement, delivers acrylic denture, carries out check-ups and denture repair.</p>
	The student is enabled to indicate, plan and conduct all the clinical stages in the manufacturing of removable partial dentures. The student is also familiarized with relining and repairs of partial dentures and the clinical stages in manufacturing complex dentures, i.e. dentures with telescope crowns and attachments.

4. Learning methods	<p>Instruction is carried out as follows :</p> <ul style="list-style-type: none"> - ex catedra lectures (L) for all students and - practical exercises 																					
5. Evaluation methods	<p>REMOVABLE PROSTHODONTICS</p> <p>At the end of the course the student can acquire a total of 100 points.</p> <p>Within the total point score, the student can acquire a maximum of 50 points during each semester for attendance, activity and partial exam:</p> <ul style="list-style-type: none"> - lecture attendance - 2 points, - attendance and activity in practical exercises - 2 points - partial exam - 46 points <p>The partial exam will be held in the 15th week in both semesters. Students sit the partial exam in the form of a test, which is compiled for each exam term, divided into A and B groups (if necessary, C and D groups). The partial exam is awarded points only if it has a score of at least 55% of correct answers. Each exam question need not be awarded the equal number of points.</p> <p>The points that the student acquires in both semesters together make the final grade.</p> <p>In accordance with the above the grade scale is as follows:</p> <table border="1" data-bbox="523 1249 1390 1711"> <thead> <tr> <th>Grade</th> <th>ECTS points</th> <th>Grade description</th> </tr> </thead> <tbody> <tr> <td>10 (A)</td> <td>95 - 100</td> <td>excellent without errors or with minor errors</td> </tr> <tr> <td>9 (B)</td> <td>85 – 94</td> <td>above average, with a few errors</td> </tr> <tr> <td>8 (C)</td> <td>75 – 84</td> <td>average, with noticeable errors</td> </tr> <tr> <td>7 (D)</td> <td>65 – 74</td> <td>generally good, but with significant flaws</td> </tr> <tr> <td>6 (E)</td> <td>55 – 64</td> <td>satisfies the minimal criteria</td> </tr> <tr> <td>5 (F)</td> <td>< 55</td> <td>does not satisfy the minimal criteria</td> </tr> </tbody> </table>	Grade	ECTS points	Grade description	10 (A)	95 - 100	excellent without errors or with minor errors	9 (B)	85 – 94	above average, with a few errors	8 (C)	75 – 84	average, with noticeable errors	7 (D)	65 – 74	generally good, but with significant flaws	6 (E)	55 – 64	satisfies the minimal criteria	5 (F)	< 55	does not satisfy the minimal criteria
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- The final exam will be held in the 17-18 th week at the end of the course for students who have not passed the first and/or the second partial exam.
- The remedial exam will be held in the 19-20 th week at the end of the course for students who have not passed the first and/or the second partial exam.
- In addition, remedial exams are also held in September.

6. Literature:

- Basker RM, Davenport JC, Thomas JM. Prosthetic Treatment of the Edentulous Patient. 5th edition. Blackwell Publishing Ltd.; 2011.
- Arthur O. Rahn AO, Ivanhoe JR, Plummer KD. Textbook of Complete Dentures. 6th edition. People's Medical Publishing House; 2009.
- Carr. AB., Brown DT. McCracken's Removable Partial Prosthodontics. 12th edition. Mosby, Inc. Elsevier; 2011.
- Şakar O. Removable Partial Dentures: A Practitioners' Manual. Springer International Publishing ; 2016.

THEORETICAL INSTRUCTION FOR MODULE 1. COMPLETE DENTURE – VII SEMESTER

Week	Lecture topics	Number of hours
Week 1.	<u>Diagnosis, treatment plan and prognosis</u> – general and dental anamnesis, clinical examination (ekstra-oral and intra-oral), special additional examination, a general and specific treatment plan, selection of materials for manufacturing dentures.	2
Week 2.	<u>Pre-prosthetic preparation of edentulous moths</u> – pre-prosthetic surgery, irregularities in the jaw bones, surgical corrections in soft tissues of the oral cavity, reconstruction of the alveolar ridge	2

Week 3.	<u>Impressions of edentulous jaws– principles and biological aspects of impressions of edentulous jaws</u> (definition and classification of impressions, extension of the borders of the upper and lower jaw impressions, modes and degree of tissue load of the denture bearing area), preliminary impression (selection of a custom tray, procedure of taking preliminary impression, checking of impression, disinfection, determining boundaries of the custom tray, transport to a dental laboratory)	2
Week 4.	<u>Impressions of edentulous jaws – functional impression</u> (adaptation of the upper and lower jaw custom tray, border molding of the upper and lower functional impression, taking of the final impression, unloading of specific zones of the denture bearing area)	2
Week 5.	<u>Determining maxillomandibular relationship – determining the position of the orientation occlusal plane</u> (by extra-oral and intra-oral method), determining the vertical dimension of occlusion (according to mandibular rest position through the articulation of particular sounds, the use of swallowing function to find the optimal vertical dimension of occlusion by measuring the muscle strength, electromiographic bite registration, use of tactile sensitivity to find the optimal bite, determining vertical dimension through the current dentures, use of parallel edentulous ridges for determining vertical dimension, use of preextraction registration for determining vertical dimension), finding the centric relation of the mandible (by registration of lateral mandibular movements, by Valcof's balls, by leading the mandible and by sponatenous bringing of the mandible through palpation of the temporal muscles and condyles and by swallowing), importance of the quality of contact between the occlusal surfaces of the occlusal rims in order to bring the mandible into the position of centric relation, errors in determining the maxillomandibular relationship, working procedures with a face bow.	2
Week 6.	<u>Selection and determination of anterior teeth position</u> – physiognomic and functional importance of the substitution of anterior teeth, selection of the anterior teeth (selection of size, shape and color), determination of the anterior teeth position in relation to residual ridges, inclination of anterior teeth in the saggital plane, overlapping of anterior teeth), the relationship of anterior teeth with the surrounding soft tissues, the anterior teeth position and speech, harmony of the comprehensive anterior teeth composition	2
Week7.	<u>Selection and determination of posteriorteeth position</u> – Planning principles for the set of posterior teeth (biological principle, principles of statics), selection of posterior teeth (shape, size, color), determination of the position (in relation to the residual ridges, toward the orientation occlusal plane and in the maximal intercuspal position)	2

Week 8.	<u>Skeletal relationship of jaws and the position of artificial teeth</u> – general rules for determining the specific position in patients with a II and III skeletal class	2
Week 9.	<u>Trial Denture</u> – try-in denture in the mouth, testing and correction of the maxillomandibular relationship (errors in the vertical dimension of occlusion, consequences of errors in the position of centric relation, errors in the position of the occlusal plane) analysis of posterior teeth position (errors in the relationship of posterior teeth and the residual ridges, errors in relation to the adjacent musculature, errors in maximalintercuspatation at the central position of the mandible), registration of excentric mandible positions and adjustment of the condyle paths of the articulator by means of position registrates.	2
Week 10.	<u>Basic principles of balanced occlusion</u> –importance of balanced occlusion for the stability and functional value of complete dentures, the concept of balanced occlusion in complete dentures, basic principles of balanced occlusion incomplete dentures, adjustment of the position of artificial teeth in accordance with the principles of balanced occlusion	2
Week 11.	<u>Retention and stabilisation of complete dentures</u> – physical factors of complete denture retention (surface charge, viscosity, adhesion and cohesion, valve effect and atmospheric pressure)	2
Week 12.	<u>Delivery of complete dentures and adaptation</u> - adaptation to a foreign body, tactile, masticatory, phonetic and psychological adaptation, duration of the adaptation period, adaptation phase in the process of prothetic treatment, <u>corrections and reocclusion</u>	2
Week 13.	<u>Repairs of complete dentures</u> – repair of the denture base, repair of teeth, repair procedure <u>Relining of complete dentures</u> – indications, contraindications, direct relining (procedure with different materials), indirect relining(procedure in a dental surgery or laboratory)	2
Week 14.	<u>Immediate complete denture</u> –concept, definition, classification, indications and contraindications, advantages and disadvantages, manufacturing methodology	2
Week 15.	<u>Specific treatment of old age edentulous patients</u> –age, changes in the body and the stomatognathic system in old age patients, effect of old age changes on prosthetic treatment	2

PRACTICAL INSTRUCTION FOR MODULE 1. COMPLETE DENTURE COURSE – VII SEMESTER

Week	Practical exercises	Number of hours
Weeks 1. -15.	<ul style="list-style-type: none"> - anamnesis - clinical examination of a completely edentulous patient, prognosis and treatment plan - preliminary impression of the upper and lower jaws - adaptation of a custom tray in the patient's mouth - functional impression of the upper and lower jaws - determination of maxillo-mandibular relationship - work with a standard face bow - registration of excentric positions of the mandible and obtaining of position registrates 	75
	<ul style="list-style-type: none"> - trial complete denture - delivery of complete dentures - check-ups, correction the base of complete denture - reocclusion of complete dentures - repairs of complete dentures - relining of complete dentures - RTG analysis 	

THEORETICAL INSTRUCTION FOR MODULE 2. PARTIAL DENTURE – VIII SEMESTER

Week	Lecture topics	Number of hours
Week 1.	<p><u>Effect of mechanical forces on teeth</u> – force intensity, force duration, intermittent forces, direction of the force impact, the attack point of the force; biomechanic balance in tooth sets, tooth mobility (physiological, pathological), behavior of the supporting tooth tissue under the force impact, importance of the number and shapes of tooth roots for accepting the forces, relationship of the remaining and lost supporting tooth tissues, paradontal resistance and insufficiency, criteria for evaluation of the paradontal state of retention teeth</p> <p><u>Edentulous or residual alveolar ridge</u> – residual alveolar ridge of the upper and lower jaws, edentulous fields, mucosis resilience, tegment behavior under the force impact, criteria for the evaluation of edentulous ridges, mutual impact of the remaining teeth and the denture, implants as supporting elements to partial dentures</p>	2

Week 2.	<p><u>Tooth loss and its effect on the stomatognathic system</u></p> <p><u>Classification of partially edentulous arches</u></p> <p><u>Classification of partial dentures</u></p> <p><u>Shapes of partial dentures</u></p> <p><u>Tasks of partial denture prosthetic treatment</u></p>	2
Week 3.	<u>Acrylic partial denture, Part I</u>	2
Week 4.	<u>Acrylic partial denture, Part II</u>	2
Week 5.	<p><u>Removable partial denture(RPD)</u>– introduction to removable partial denture, indications and countraindications, elements of the removable partial denture, gingival part of the removable partial denture (maxillary and mandibular major connectors, saddle), dental part of the denture (retention elements), dental part of the denture (stabilisation elements, occlusal rests for axial loading),connection between the gingival and dental part of the denture (minor connectors, stressbreaker design)</p>	2
Week 6.	<p><u>Dentalsurveyor</u>– definition and classification, parts of dental surveyor, principle of work with a dental surveyor, basic positions of models in the surveyor, tasks in working with the dental surveyor</p> <p><u>Basic concepts related to planning of removable partial denture</u> – path of insertion the denture, displacement of the denture, tooth equator - survey line, guiding planes</p> <p><u>Retention of removable partial denture</u> – on the basis of elastic properties of material and friction, on the basis of material friction, on the basis of mechanical connection, measurement of retention force according to BIOS system</p>	2

Week 7.	<p><u>Biostatics of removable partial denture</u> – force effect, free end saddle statics, stabilisation of removable partial denture</p> <p><u>Planning of removable partial denture</u>– biomechanical problems of planning (lever, inclined plane), role of number and support localisation in the stabilisation of removable partial denture</p> <p><u>Analysis of study models in articulator</u> - (selection of articulator, transfer of model into the articulator, analysis of the current occlusion, general principles of occlusion reconstruction with partial dentures, relationship of occlusal rests with the antagonistic tooth set) and in the dental surveyor, study model analysis, RPD planning in dental surveyor, RPD planning principles(planning of fixed substitutes, procedures in designing the metal framework) esthetic requirements, prophylactic requirements in RPD planning</p>	2
Week 8.	<p><u>Complex partial dentures</u>– definition and basic concepts, guidelines for the fabrication of complex partial dentures, fixed substitutes envisaged to accept removable partial denture, milling in dental prosthetics, connection between fixed and removable substitutes</p>	2
Week 9.	<p><u>Partial dentures with attachments, part I</u> – general characteristics of attachments, retention and stabilisation of removable partial denture with attachments, guidance of substitutes, dental occlusal loads, classification of attachments, slide attachments, ball attachments, Ceka attachments, bar attachments, joints, screws, attachments with combined construction properties</p>	2
Week 10.	<p><u>Partial dentures with attachments, part II</u> – manufacture of dentures with attachments (materials for attachments, RPD planning principles on attachments, specifics of clinical part of manufacturing dentures on attachments (fabrication of the fixed part of the substitute, fabrication of the removable part of the substitute), specifics of the laboratory fabrication of denture with attachments (setting technique and the way of remounting attachments) check-ups, repairs of partial dentures with attachments</p>	2
Week 11.	<p><u>Partial telescope dentures</u>– general characteristics of double crowns (classification and function) double telescope crowns (shapes, retention and stabilisation of partial dentures with telescope crowns, guiding of the partial denture with telescope crowns, transfer of occlusal loads on retention teeth, double cone crowns (shape, retention of partial denture with cone crowns, function of cone crowns), fabrication of partial telescope denture (materials in the fabrication of double crowns, planning principles for partial telescope dentures, specifics of clinical part (fabrication of the fixed part, fabrication of the removable part, impression, maxillo-mandibular relationship.), specifics of the laboratory fabrication of partial telescope dentures, check-ups</p>	2

Week 12.	<p><u>Other types of partial dentures</u>—overdenture, sectional partial dentures, swing-lock partial dentures, reduced partial dentures, disjunct partial dentures, one-sided partial dentures, flexible partial dentures, partial dentures on implants, opturators and post-resection partial dentures</p> <p><u>Subtotal dentures</u> –subtotal edentulism and subtotal dentures, clinical evaluation, classification of subtotal edentulism, number and location of the remaining teeth, diagnostic models and treatment plan, subtotal edentulism treatment (with partial acrylic dentures, overdentures, removable partial denture with attachments, double crowns, magnets), biomechanics of subtotal dentures, functional and esthetic values of subtotal dentures</p>	2
Week 13.	<u>Clinical procedures in treatment of partial edentulism with removable partial dentures, Part I</u>	2
Week 14.	<u>Clinical procedures in treatment of partial edentulism with removable partial dentures, Part II</u>	2
Sedmica 15.	<p><u>Check-ups, corrections, repairs and relining of partial dentures</u></p> <p><u>Esthetics of partial dentures</u> – esthetic elements in dentistry, esthetics of partial dentures, size, shape and position of teeth, determining the tooth color, visibility of retention elements.</p>	2

PRACTICAL INSTRUCTION FOR MODULE 2. PARTIAL DENTURE COURSE – VIII SEMESTER		
Week	Practical exercises	Number of hours
Weeks 1. -15.	<ul style="list-style-type: none"> - indicate a type of partial denture, make a prognosis and treatment plan - obtain the anamnesis, patient's clinical examination and Rtg analysis - preliminary impression of the upper and lower jaws and analysis of study model - final impression of the upper and lower jaws - determination of maxillo-mandibular relationship 	75

	<p>in acrylic dentures</p> <ul style="list-style-type: none"> - try-in of the cast metal framework and determining the maxillomandibular relationship in removable partial dentures - work with a standard face bow - registration of eccentric mandibular positions and obtaining of position registrates - try-in of partial denture - delivery of partial dentures - check-ups, denture corrections, repairs, realigning - treatment of partial edentulism with partial dentures with attachments and telescope dentures, guidelines for clinical application - partial edentulism treatment with complex partial dentures - fixed substitutes for accept the elements of partial denture, guidelines for laboratory and clinical fabrication of fixed substitutes - subtotal edentulism treatment, selection of retention and stabilisation elements. 	
Weeks 17-18.	Final exam	
Weeks 19.-20.	Remedial exam	

Code: SFS0136	Name of the course subject: ORAL MEDICINE PATHOLOGY		
Level: Undergraduate	Year: 4	Semester: VIII	ECTS credits: 5
Status: Compulsory			Total hours: 60
Faculty advisor:			
Requirements for taking the course: Requirements regulated by the Rule book on studying at the first cycle of studies at the University of Sarajevo			
1. Course objectives	<p>The goal of the course is to teach students of the Faculty of Dental Medicine, future doctors of dental medicine, about etiopathogenesis, immunopathogenesis, and the implications of systemic and autoimmune diseases in the oral mucosa. Systemic and autoimmune diseases have harmful repercussions on an organism, and that is why it is necessary to synthesize medical and dental knowledge. A casuistry of diseases of the oral mucosa is a broad and significant area of prevention, diagnostics, and therapy. The goal of the course is to teach students about the significance of multidisciplinary diagnostics and therapy of diseases of the oral mucosa and focal complex.</p>		
2. Purpose of the course	<p>The purpose of the course is to use theoretical and practical lessons to present the students with modern scientific and clinical discoveries about etiopathogenesis, pathophysiological, immunological, pathohistological and immunofluorescent characteristics in making a definitive diagnosis in systemic diseases, autoimmune diseases, blood dyscrasias, endocrine disorders, with diseases of salivary glands and focal complex of medically compromised patients. To teach the students about medication therapy, the significance of medication interaction in the treatment of oral mucosa and orofacial pain. To train students to notice and recognize initial symptoms of diseases and syndromes and to conduct therapy protocols in a multidisciplinary manner and in collaboration with the corresponding specialist.</p>		
3. Learning outcomes	<p>By attending the course “Oral medicine pathology” the students will adopt the following skills and knowledge:</p> <p>Module 1- Epidemiology, etiology, clinical picture, pathohistological test results, differential diagnosis, and SAR therapy. The aim of the module is to introduce the students with multicausal etiology, a pathognomonic efflorescence of the type of recurrent ulcer with pathohistological verification (vasculitis) and the clinical forms and stages of SAR. To draw attention to the significance of the Behcet syndrome for dental medicine practitioners.</p> <p>Module 2- Allergies - generalized and localized anaphylaxis. The aim of the module is to introduce the students to the symptoms, clinical picture and pathophysiological and immunological occurrences in different forms of allergic reactions. To present necessary diagnostic procedures for giving a diagnosis (clinical picture, laboratory results, and allergy tests). The</p>		

identification of allergens is the main purpose in diagnosis and therapy of an allergic reaction.

Module 3- Salivary glands diseases. The aim of the module is to introduce the students with propaedeutics: saliva and tests, diseases of salivary glands (functional disorders, obstructive and traumatic lesions), as well as modern approach in diagnostics and therapy.

Module 4- Orofacial pain. The aim of the module is to introduce the students with the definition of pain, pain modulation, and the classification of orofacial pain, differential diagnosis of pain, as well as the mechanisms of pain syndromes, and the significance of dentists in a team approach to the treatment of orofacial pain.

Module 5- White lesions of oral mucosa. To introduce the students with the etiology, clinical picture, histopathology and therapy of white lesions. The aim of the module is to introduce the students with the significance of differential diagnosis and the significance of clinical microbiological, exfoliative cytological and pathohistological test result.

Module 6- Autoimmune diseases in dental practice. To introduce the students with the significant influence of humoral and cellular immune response in oral autoimmune diseases. To draw attention to the significance of polymorphism of efflorescence and therapy protocol in autoimmune diseases. To draw attention to the differential diagnosis in autoimmune diseases, macroscopic, pathohistological, immunofluorescent, microbiological, laboratory results, and tests.

Module 7- Precanceroses. The aim of the module is to introduce the students with the significance of early detection of oral precancerous (Toluidine blue, exfoliative cytology, laboratory results).

Module 8- Blood dyscrasias. The aim of the module is to introduce the students to the diseases of erythropoiesis, leukopoiesis, hemoblastosis, as well as diseases of hemostasis. To introduce the students with the significance of all the elements of bloodline and the complications in working with these high-risk patients – premedication and multidisciplinary approach.

Module 9- Endocrine diseases. The aim of the module is to introduce the students with the significance of the dysfunction of endocrine disorders and their implications on the oral mucosa. To introduce the students with the significance of initial symptomatology in the early detection of diabetes mellitus, and microangiopathies and their etiopathogenetic mechanism in all organs and tissues.

Module 10- Focal complex. The aim of the module is to introduce the students with the focuses, localization, and the significance of odontogenic focal points in the formation of consecutive diseases. To introduce the students with the significance of the diagnosis of focal conditions, detection of oral focuses and therapy of focal patients. To teach students about the modern concept of the focal complex.

	<p>Module 11- Oral diseases related to age. The aim of the module is to introduce the students with the changes in the area of the orofacial region, with the changes in oral mucosa in different stages of life.</p> <p>Module 12- Medication therapy of lesions in the oral mucosa. The aim of the module is to introduce the students to the use of medications in the treatment of oral diseases, indications related to antibiotics, retinoids, corticosteroids, immunosuppressants, systemically and topically. To train the students to write prescriptions for medications in the therapy of lesions of the oral mucosa.</p> <p>After attending the course the students should be able to adopt the following standpoints:</p> <ol style="list-style-type: none"> 1. they should acquire considerable knowledge of morphological, pathohistological, laboratory characteristics of SAR, allergies, white lesions and autoimmune diseases. 2. they should acquire knowledge about the significance of systemic diseases and their implication of the oral mucosa, as well as the significance of early detection of initial precancerous lesions. 3. they should adopt a time aspect of focal infection, diagnosis, and therapy. 4. they should have considerable knowledge of differential-diagnostic method and therapy protocols with a multidisciplinary approach.
4. Teaching methods	<p>The course is held:</p> <ol style="list-style-type: none"> 1. lecture ex- cathedra for all the students 2. clinical exercises (practice)
5. Methods of learning assessment	<p>One of the forms of activity is the lecture and practical exercise attendance. The assessment of theoretical knowledge from the completed semester will be conducted in the oral form.</p> <ul style="list-style-type: none"> - regular lecture attendance - 5 points, - practice attendance – 5 points, - practical exam - 10 points, - oral exam – 35 points. <p>In this semester a student can acquire a maximum of 55 points.</p> <p>A student that has not passed a mid-term exam at the end of semester VIII takes the entire curriculum matter of both semesters VII and VIII in the form of the oral exam.</p> <p>The final grade consists of the sum of points that the student has acquired in semester VII and the sum of points from semester VIII.</p> <ol style="list-style-type: none"> a) 10 (A) - exceptional results without mistakes or with insignificant mistakes, a total of 95-100 points; b) 9 (B) - above average, with few mistakes, a total of 85-94 points; c) 8 (C) - average, with noticeable mistakes, a total of 75-84 points; d) 7 (D) - generally good, but with significant shortcomings, a total of 65-74 points;

	<p>e) 6 (E) - fulfills minimum criteria, a total of 55-64 points;</p> <p>f) 5 (F,FX) - does not fulfil minimum criteria, 0-54 points.</p>
6. Literature:	<p>Obligatory:</p> <ol style="list-style-type: none"> 1. Greenberg M.S.; Glick M. Burket's Oral Medicine. Diagnosis and Treatment. Tenth edition. BC Decker Inc., Hamilton, 2003. 2. Laskaris G .Pocket Atlas of Oral Diseses. Second edition. Thieme, 2005 3. Cawson R.A.; Odell E.W. Essentials of oral pathology and oral medicine. Sixth editon. Churchill Livingstone. 1998. 4. Additional references : Lectures

A DETAILED PLAN OF THE SYLLABUS:

Week	A form of teaching and curriculum	Number of hours
Week 1	<p>Lecture: Recurrent aphthous stomatitis, Behçet syndrome</p> <p>Practice: Individual work with a patient</p> <p>Seminars:</p>	<p>2</p> <p>2</p>
Week 2	<p>Lecture: Allergies</p> <p>Practice: Individual work with a patient</p> <p>Seminars:</p>	<p>2</p> <p>2</p>
Week 3	<p>Lecture: Diseases of salivary glands</p> <p>Practice: Individual work with a patient</p> <p>Seminars:</p>	<p>2</p> <p>2</p>
Week 4	<p>Lecture: Orofacial pain</p> <p>Practice: Individual work with a patient</p> <p>Seminars:</p>	<p>2</p> <p>2</p>
Week 5	<p>Lecture: White lesions</p> <p>Practice: Individual work with a patient</p> <p>Seminars:</p>	<p>2</p> <p>2</p>
Week 6	<p>Lecture: White lesions</p> <p>Practice: Individual work with a patient</p>	<p>2</p> <p>2</p>

	Seminars:	
Week 7	Lecture: Autoimmune oral diseases	2
	Practice: Individual work with a patient	2
	Seminars:	
Week 8	Lecture: Autoimmune oral diseases	2
	Practice: Individual work with a patient	2
	Seminars:	
Week 9	Lecture: Precanceroses of the oral mucosa	2
	Practice: Individual work with a patient	2
	Seminars:	
Week 10	Lecture: Blood dyscrasias	2
	Practice: Individual work with a patient	2
	Seminars:	
Week 11	Lecture: Blood dyscrasias	2
	Practice: Individual work with a patient	2
	Seminars:	
Week 12	Lecture: Endocrine diseases	2
	Practice: Individual work with a patient	2
	Seminars:	
Week 13	Lecture: Focal complex	2
	Practice: Individual work with a patient	2
	Seminars:	
Week 14	Lecture: Oral diseases related to age	2
	Practice: Individual work with a patient	2
	Seminars:	
Week 15	Lecture: Medication therapy for lesions in the oral mucosa	2
	Practice: Individual work with a patient	2
	Seminars:	
Week 17	Final exam (practical and writing learning assessment)	
Week 18-20	Makeup exam date for students who have not passed the final exam.	

The answers to the exam questions can be found within topics of lectures listed in syllabus for the aforementioned courses.

CODE: SFSOS0705E	COURSE TITLE: PRECLINICAL ENDODONTICS		
Level: Undergraduate	Year: IV	Semester: VII	ECTS credits: 4
Status: Obligatory			Total classes: 45(15+30)
Course leader	Head of the department		
Course description			
Objectives of the course	Through 15 hours of lectures students are given fundamentals knowledge in endodontics which are essential for clinical work.		
Purpose of the course	The course introduces students with endodontic therapeutic protocol, endodontic space morphology, clinical classification of pulpal and periapical diseases, endodontic instruments, access cavity preparation, measuring of the working length as well as basics of root canal preparation, medication and obturation.		
Learning outcomes	Students are improving root canal preparation, medication and obturation on extracted teeth.		
Learning methods	Lectures Special preclinical practicals		
Criteria for taking the course exam			
Knowledge assessment methods	During the semester students have a short written knowledge check. The final exam is taken after the 7 th semester in the written form. Students answer the question by marking the offered answers. If the student gives positive answers to 76% of questions or more, the written part of the exam is considered a pass.		
Literature	<p>Required literature:</p> <ol style="list-style-type: none"> Walton RE, Torabinejad M, Fouad A. Endodontics: principles and practice. Elsevier Saunders, St. Louis, 2015. <p>Recommended literature:</p> <ol style="list-style-type: none"> Ingle JI, Bakland LK. Endodontics. People's Medical Publishing House-USA, 2016. Cohen S, Burns RC. Pathways of the pulp. Mosby Inc, St. Louis, 2019. Bergenholtz G, Hørsted-Bindslev P, Reit C. Textbook of Endodontology. John Wiley and Sons, USA, 2010. 		

Rules of grading	The final grade is formed on the basis of the following factors: - attendance at the lecture - maximum 10 points - attendance at practicals - maximum 10 points - short written test of knowledge- maximum 10 points - practical part of the exam - maximum 20 points
	- final exam- maximum 50 points 10 (A) -95-100 points; 9 (B) - 85-94 points; 8 (C) - 75-84 points; 7 (D) - 65-74 points; 6 (E) - 55-64 points; 5 (F, FX) – not satisfied, less than 55 points.
Exam questions	
Examination questions correspond to titles and contents of the lectures, the chapters in the mandatory literature and the knowledge and skills acquired during this course.	

<i>Week</i>	Preclinical endodontics	Course load
<i>Week 1.</i>	Lecture: Introduction and scope of endodontics	1
	Special preclinical practicals: Endodontics treatment planning	2
<i>Week 2.</i>	Lecture: Diagnostic procedures in endodontics	1
	Special preclinical practicals: Demonstration of rubber-dam use	2
<i>Week 3.</i>	Lecture: Basics of pulp and apical periodontal pathology, clinical classification of pulpal and periapical pathology.	1
	Special preclinical practicals: Demonstration of diagnostic procedures	2
<i>Week 4.</i>	Lecture: Internal anatomy, topography and canal configuration.	1
	Special preclinical practicals: Analisis of morphology and anatomy of endodontic space.	2
<i>Week 5.</i>	Lecture: Endodontic instruments I	1
	Special preclinical practicals: Endodontic instruments	2

<i>Week 6.</i>	Lecture: Endodontic instruments I	1
	Special preclinical practicals: Endodontic instruments	2
<i>Week 7.</i>	Lecture: Guidelines for access cavity preparation	1
	Special preclinical practicals: Access cavity preparation	2
<i>Week 8.</i>	Lecture: Working length determination	1
	Special preclinical practicals: Use of electronic apex locators	2
<i>Week 9.</i>	Lecture: Basic principles of canal instrumentation	1
	Special preclinical practicals: Biomechanical canal preparation	2
<i>Week 10.</i>	Lecture: Irrigation and intracanal medicaments	1
	Special preclinical practicals: Protocol of canal irrigation	2
<i>Week 11.</i>	Lecture: Obturation of root canal system I	1
	Special preclinical practicals: Obturation techniques	2
<i>Week 12.</i>	Lecture: Obturation of root canal system II	1
	Special preclinical practicals: Obturation techniques	2
<i>Week 13.</i>	Interactive recapitulation	1
		2
<i>Week 14.</i>	Interactive recapitulation	1
		2
<i>Week 15.</i>	Interactive recapitulation	1
		2
<i>Week 17.</i>	Final exam	1
<i>Week 18.-20.</i>	Remedial	1

FOURTH YEAR ELECTIVE COURSES

Code: SFSIS0801E	COURSE TITLE: PROPHYLAXIS OF ORAL DISEASES		
Level: Undergraduate	Year: IV	Semester: VIII	ECTS credits: 6
Status: Elective			Total classes: 45
LECTURER IN CHARGE :	Head of the Department		
Requirements for taking the course: Requirements regulated by the Rule book on studying at the first cycle of studies at the University of Sarajevo			
1. Course objectives	The goal of the course is to teach students of the Faculty of Dental Medicine, future doctors – dentists about anatomically-morphological characteristics of oral mucosa and their function. About the significance of the factor of defense in the prophylaxis of oral diseases. Maintaining the physiological integrity depends on the local and systemic immune responses which represent a significant factor in health preservation. To introduce students with the general, local and functional prevention measurements for preserving the integrity of the oral mucosa.		
2. Purpose of the course	The purpose of the course is to use theoretical and practical lessons to introduce the students with modern scientific and clinical discoveries about anatomically-morphological and functional characteristics of the oral mucosa. To introduce the students with macroscopic and microscopic pathological changes in the oral mucosa and oral tests which are used in oral diseases diagnostics. To train students about the prevention measures for preserving the integrity of the oral mucosa.		

3. Learning outcomes	<p>By attending the course “Prophylaxis of oral diseases” students will be able to adopt the following skills and knowledge:</p> <p>Module 1 – Anatomically-morphological and physiological characteristics of the oral mucosa. The aim of the module is to introduce the students with anatomically-morphological and physiological characteristics of the oral mucosa.</p> <p>Module 2 – Pathological characteristics of the oral mucosa. The aim of the module is to introduce students to the pathological characteristics of the oral mucosa, macroscopic and microscopic changes and differential diagnosis.</p> <p>Module 3 – Factors of defense. The aim of the module is to introduce the students with the oral flora and the changes which occur during a lifetime, as well as the factors of defense in the oral cavity which are essential for the maintenance of homeostasis.</p> <p>Module 4 – Specific oral tests. The aim of the module is to introduce the students with the specificities of anamnestic diagnostic checkups of the oral mucosa and oral tests required for diagnosing oral diseases.</p> <p>Module 5 – Specificities of the oral mucosa in relation to age. The aim of the module is to introduce the students with the changes in the oral mucosa in different stages of life.</p> <p>After attending the course students should be able to adopt the following standpoints:</p>
	<ol style="list-style-type: none"> 5. they should acquire considerable knowledge of anatomicallymorphological, physiological and pathological characteristics of the oral mucosa. 6. comprehend the application of anamnestic diagnostic principles in the check-up of the oral mucosa and practical application of oral tests. 7. adopt the knowledge of oral flora and the significance of the factor of defense in the prevention of oral mucosal diseases.
4. Teaching methods	<p>The course is held:</p> <ol style="list-style-type: none"> 1. lecture ex- cathedra for all the students 2. practical exercises

5. Methods of learning assessment	<p>One of the forms of activity is the lecture and practical exercises attendance. The assessment of theoretical knowledge from the completed semester will be conducted in the written form – by means of a test. The total grade consists of:</p> <ul style="list-style-type: none"> - regular lecture attendance – 5 points, - practice attendance – 5 points, - active work in practice – 35 points, (written representation of a clinical case – 20 points, an answer to an essay question – 15 points) - The final exam by means of a test – 55 points. Student can acquire a maximum of 100 points. <p>The assessment and grading of students’ knowledge will be conducted according to the following system:</p> <ul style="list-style-type: none"> m) 10(A)- exceptional results without mistakes or with insignificant mistakes, a total of 95-100 points; n) 9(B)- above average, with few mistakes, a total of 85-94 points; o) 8 (C)- average, with noticeable mistakes, a total of 75-84 points; p) 7(D) – generally good, but with significant shortcomings, a total of 65-74 points; q) 6(E) – fulfills minimum criteria, a total of 55-64 points; r) 5(F, FX) – does not fulfill minimum criteria, less than 55 points.
6.Literature:	<p>Obligatory:</p> <ol style="list-style-type: none"> 1. Greenberg M.S.; Glick M. Burket’s Oral Medicine. Diagnosis and Treatment. Tenth edition. BC Decker Inc., Hamilton, 2003. 2. Laskaris G .Pocket Atlas of Oral Diseses. Second edition. Thieme, 2005 3. Cawson R.A.; Odell E.W. Essentials of oral pathology and oral medicine. Sixth editon. Churchill Livingstone. 1998. <p>4. Additional references : Lectures Supplementary:</p> <ol style="list-style-type: none"> 1. Topić Berislav and associates: Oral Medicine, Faculty of Dental Medicine in Sarajevo, 2001. 2. Pašić E, Hadžić S, Gojkov-Vulelić M and Hukić M: Oral microbiology, Faculty of Dental Medicine in Sarajevo, 2017. 3. Đukanovic Dragoslav and associates: Atlas – diseases of the soft tissue in the oral cavity, Belgrade, 2001.

Week	A form of teaching and curriculum	Number of hours
Week 1.	Lecture: Morphological characteristics of the oral mucosa Practice: Project Based Learning - Analysis of histological samples of the oral mucosa	1 2
Week 2.	Lecture: Physiological characteristics of the oral mucosa Practice: PBL - Analysis of histological preparations of the oral mucosa	1 2

Week 3.	Lecture: Pathological characteristics of the oral mucosa Practice: PBL - Introduction to the pathological changes of the oral mucosa by means of schemas and images	1 2
Week 4.	Lecture: Pathological characteristics of the oral mucosa Practice: PBL - Introduction to the pathological changes of the oral mucosa by means of schemas and images	1 2
Week 5.	Lecture: Microscopic pathological changes in the oral mucosa Practice: PBL - Analysis of pathohistological preparations of the oral mucosa	1 2
Week 6.	Lecture: Factors of defense in the oral cavity Practice: PBL - Demonstration of a clinical examination of the oral mucosa	1 2
Week 7.	Lecture: Factors of defense in the oral cavity Practice: Clinical examination of the oral mucosa	1 2
Week 8.	Lecture: Pathogenesis of the diseases of the oral mucosa Practice: PBL - individual work	1 2
Week 9.	Lecture: Anamnestic diagnostic principles in the examination of the oral mucosa Practice: PBL - individual work	1 2
Week 10.	Lecture: Specific oral tests Practice: PBL - Student assessment (case demonstration)	1 2
Week 11.	Lecture: Specific oral tests Practice: PBL - Demonstration of tests in oral medicine	1 2
Week 12.	Lecture: Specificities of the oral mucosa in relation to age; Practice: PBL - individual work	1 2
Week 13.	Lecture: Specificities of the oral mucosa in relation to age Practice: PBL- individual work	1 2
Week 14.	Lecture: Impact of medications on the oral mucosa Practice: PBL - individual work	1 2
Week 15.	Lecture: Principles of therapy in oral medicine Student presents a written answer to an essay question	1 2
Week 17.	Assessment of theoretical knowledge by means of a test.	
Week 18. – 20.	Makeup exam date for students who have not passed the written exam.	

Code: SFSIS0706E	Course title: OROFACIAL PAIN		
Level: Undergraduate	Year: IV	Semester: VII	ECTS Credits: 6
UndergraduateStatus: elective			Total classes: 45 (30+15)

Responsible teacher:	Head of the department	
Conditions for attending classes: The requirements are regulated by the Study Rules for the Integrated study program of the first and second cycle at the higher education institutions of the University of Sarajevo.		
1. Objectives of the course	Introducing students with pain definition, functional anatomy of the nervous system related to pain perception. Introducing students with etiology, a general and specific division of the cause of pain in Dentistry and therapy methods.	
2. Purpose of the lecture	Acquiring basic knowledge about the method of clinical recognition of particular pain, medication and surgical therapy.	
3. Learning outcome	After completing classes, students must: Master basic clinical recognition and specificity of pain in Dentistry. • Master the medication method of pain therapy. Master the local therapy method (some intervene procedures in Dentistry to accomplish local analgesia)	
4. Learning methods	Interactive lectures	
5. Knowledge assessment methods	The exam is written in a text form containing 10 questions. To pass the test with the minimum of knowledge it is necessary that 60% of the answer is correct. For every test period a new test questionnaires are prepared and divided into groups A, B and C. The final exam represents 50% of the final grade. The regular attendance at the lectures makes 50% of the final grade. Upon completion of the semester, a student can earn a maximum of 100 points. According to the above, the scale rating is as follows:> 50 points- a.) 10 (A) -extraordinary success without error or with minor mistakes, bears 91-100 points; b.) 9 (B) - above the average, with some mistake, it is 81-90 points; c.) 8 (C)- average, with noticeable mistakes, it is 71-80 points; d.) 7 (D)-generally good, but with significant, it is 61-70 points; e.) 6 (E) - meets the minimum criteria, makes 55-60 points; f.) 5 (F) – unsatisfying, not even the minimum criteria, less than 55	
6. Literature: Obligatory: 1. Orofacial Pain, Guidelines for Assessment, Diagnosis, and Management, Fifth Edition 5th Edition. Publisher: Quintessence Pub Co; by Reny de Leeuw (Author), Gary D. Klasser (Author) (May 1, 2013) Expanded: Other textbooks of interventional dentistry		
week	The form of teaching and materials	Number of hours
week 1.	Lecture: pain- definition, functional anatomy of the nervous system. Exercises: Seminars:	2 1

week 2.	Lecture: Basic characteristics, causes, classification of pain. Exercises: - Seminars:	2 1
week 3.	Lecture: Pain therapy - basic division. Exercises: - Seminars:	2 1
week 4.	Lecture: Medical treatment of pain. Exercises: - Seminars:	2 1
week 5.	Lecture: Surgical therapy of pain Exercises: - Seminars:	2 1
week 6.	Lecture: Basics of local pain therapy Exercises: - Seminars:	2 1
week 7.	Lecture: Pain in acute inflammatory conditions Exercises: - Seminars:	2 1
week 8.	Lecture: Periodontal pain Exercises: -Seminars:	2 1
week 9.	Lecture: Pulpitic pain. Exercises: -Seminars:	2 1
week 10.	Predavanje: Periostal bol Exercise:- Seminari:	2 1
week 11.	Lecture: Bone pain, Fracture pain, Osteomyelitis Pain, Alveolytic pain Exercises: Seminars:	2 1
week 12.	Lecture: Myalgic pain. Exercises: Seminars:	2+1
week 13.	Lecture: Artralgie pain Exercises: Seminars:	2+1
week 14.	Lecture: Neuralgiform pain-Trigeminal pain: 1. neuritis 2. neuralgies Exercises: Seminars:	2 1
week 15.	Lecture: Carcinoma pain Exercises:	2+1 1
week 17.	Final exam	
Week 18-20.	Remedial	

Code: SFSIS0802E	Course title: COMMUNITY DENTISTRY		
Level: Undergraduate	Year: IV	Semester:VIII	ECTS credits: 6

Status: Elective		Total classes:45
Lead professor:	Head of the Department	
1. Objectives	On successful completion students will be capable to: Recognize and understand basic factors that influence oral health including social, cultural, economic and political indicators of health and their impact on general health.	
2. Purpose	On successful completion of this module students will be able to describe, explain and identify the most significant issues for development of a patient-centered oral health care system and fully aware and respectful of the highest principles of the health care ethic.	
3. Learning outcomes	<p>On successful completion of this module, students will:</p> <ul style="list-style-type: none"> - be able to plan, organize and conduct population-based oral health studies on local and national level - know and understand strategies for development of preventive oral health care programs and be capable of evaluating advantages and disadvantages of different strategies - be able to identify and describe different types of research projects: descriptive, analytical and experimental - adopt the principles of evidence-based, clinical oral health care, be able to understand application of fact-based studies in clinical practice and capable of evaluating the efficiency of evidence-based clinical practice adopt principles of critical reading of scientific literature 	
4. Teaching methods	<p>Module includes:</p> <p>ex cathedra lectures for all participating students; standardized practical, hands-on training for groups of students interactive learning and PBL model for all participating students (within ex cathedra lectures and practical training)</p>	
5. Methods of assessment / student evaluation	<p>After taking part in all lectures and hands-on training activities and upon completing the final exam, students can earn a maximum of 100 points. The final course grade will include the following:</p> <p>Points earned for student activity in practical training sessions. Students can earn a maximum of 30 points. Student activity will be observed and assessed continuously on individual basis. Specific components are assessed separately in that a single completed practical assignment can be awarded with a maximum of 2.5 points.</p> <p>Points earned for completed partial exam. Students can earn a maximum of 40 points per completed partial exam. Written partial exams are administered in the 10th week of the program, to assess the knowledge acquired by the student in the first 9 weeks of the program. The sitting of partial exam is not mandatory; a student may decide to instead sit a single cumulative final exam.</p>	

	<p>Results of the final written exam in which a student can earn a maximum of 30 points. To pass final exam at least 55% of exam questions must be answered correctly Student can achieve maximum of 100 points. Final grade is formed according to grading scale: Grading scale : A (10) = 95- 100 points B (9) = 85- 94 points C (8) = 75- 84 points D (7) = 65- 74 points E (6) = 55-64 points</p>
6. Literature	<p>1.Pine C., Harris R.: „COMMUNITY ORAL HEALTH“, Quintessence Publishing, UK Catalogue, 2007 2. Murray J.J.: „PREVENTION OF ORAL DISEASES“, 4th Edition, Oxford University Press, Oxford, 2003.</p>

Week	Content and teaching methods	Number of hours
Week 1	Lectures: Introduction to community dentistry, definition, historical background and development, basic terms and importance.	1
	Hands-on training: Introduction and methodology.	2
Week 2	Lectures: Modalities of preventive community dentistry	1
	Hands-on training: Evaluation of oral health care based on epidemiological parameters of oral health (phase one)	2
Week 3	Lectures: Oral morbidity	1
	Hands-on training: Evaluation of oral health protection based on epidemiological parameters of oral health (phase two)	2
Week 4	Lectures: Human behavior and health.	1
	Hands-on training: Development and planning of a preventive program for a specific region. Analysis of factors influencing the community oral health.	2
Week 5	Lectures: Public health care programs: models, planning, financing, evaluation, participants.	1
	Hands-on training: Planning of a preventive program for a specific region. Identification and formulation of problem, defining of the overall and specific goals.	2
Week 6	Lectures: Oral health of specific population groups.	1
	Hands-on training: Planning of a preventive program for a specific region. Identification of the program's target population.	2
Week 7	Lectures: Inequalities in oral health care.	1
	Hands-on training: Planning of a preventive for a specific region. Analysis of social, educational and cultural factors of the targeted population.	2

Week 8	Lectures: Monitoring and evaluation of oral health. Hands-on training: Preparing a proposal for a preventive program, including information on program goals, participants, partners, financing and evaluation mechanisms (first phase).	1 2
Week 9	Lectures: Advantages and disadvantages of having a national oral disease prevention program Hands-on training: Preparing a proposal for a preventive program, including information on program goals, participants, partners, financing and evaluation mechanisms (second phase).	1 2
Week 10	Lectures: Dental hygienists' role in dental team. Hands-on training: Partial exam	1 2
Week 11	Lectures: Addiction diseases and their impact on oral health. Hands-on training: Presentation of preventive project proposal.	1 2
Week 12	Lectures: Evidence-based dentistry Hands-on training: Presentation of literature on a specific community oral health problem and short evaluation of three selected pieces of literature (group work).	1 2
Week 13	Lectures: Role of community dentist in public health care system Hands-on training: Presentation of literature on a specific community oral health problem and critical evaluation of three selected pieces of literature (group work).	1 2
Week 14	Lectures: Statistical methods in oral health studies. Hands-on training: Population, sampling, research hypothesis and their testing: parametric and non-parametric tests (part one).	1 2
Week 15	Lectures: World health organization (WHO), Health 2020, global goals for oral health 2020. Hands-on training: Population, sampling, research hypothesis and their testing: parametric and non-parametric tests (part two).	1 2
Week 17	Final exam	
Week 18-20	Remedial	

Code: SFSIS0707E	COURSE TITLE: DENTAL RADIOLOGY
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Level: undergraduate	Year: IV	Semester: VII	ECTS credits: 6
Course status: elective		Total classes: 45	
Professor in charge:			
Entry requirements: according to the study legislation rules at the University of Sarajevo			
1. Course objectives	Acquiring knowledge to the extent necessary for students of dentistry, about the way of X-ray genesis and their nature, as well as the consequences of their use, recording techniques of dentofacial region, radiological anatomy, radiological description, diagnostics and differential diagnostics of pathological conditions, anomalies, and trauma in the dentofacial area.		
2. Course purpose	<p>Training a student for radiological interpretation and diagnostics of dental radiographs. Knowing radiological dental techniques of recording with indications and contraindications for particular techniques. Radiological imaging in special categories of patients. Basic principles of radiation and protection of patients and dental staff.</p> <p>Through lectures and practical teaching, theoretical and practical knowledge is acquired and overwhelmed the skill of performing radiological imaging techniques, radiological descriptions and radiological diagnostics in the dentofacial area.</p>		
3. Course outcomes	<p>After studying, students will be capable of:</p> <ul style="list-style-type: none"> - knowing basic concepts of ionizing radiation and biological effects of radiation - appearance and principles of work in the X-ray cabinet - working with dental X-ray devices and accessories - radiological techniques of recording with intraoral and extraoral methods, digital radiography and special techniques - knowing the principles of protection against ionizing radiation and the infection during work in the X-ray cabinet - knowing the types of dental films and cassettes, content, method of processing and errors - knowing the principles of analysis of dental radiographs - radiological description and diagnosis of normal anatomical structures, pathological processes and anomalies of the dentofacial region - training a student for solving differential diagnostic dilemmas in the diseases of this region. 		

4. Learning methods	<ul style="list-style-type: none"> - Ex-cathedra lectures for all students - Practical exercises in groups according to standard - Interactive teaching for all students (as part of lectures and practical exercises) - Creation and public presentation of seminar work
	<p>Interactive learning is carried out as part of lectures and practical exercises. Continuous assessment of preparedness for the theoretical teaching, practical classes and active participation in the discussion is conducted.</p>
5. Methods of student knowledge assessment	<p>Continuous assessment of knowledge during the semester. The final grade will be formed on the following elements:</p> <ul style="list-style-type: none"> - obligatory attendance at lectures and active participation 20% - compulsory attendance and active participation in practical exercises 20% - one written and successfully defended seminar work on the course subject 10% - Final exam consisting of the practical and theoretical part of the exam, which is valued by 50% of the final grade (practical part/theoretical part ratio: 20%:30%) The practical part of the final exam involves: MCQ test, analysis and description of dental radiographs. The theoretical part of the exam implies an oral examination of knowledge acquired based on the implementation plan and program. The final exam is passed if the practical part of the exam is passed with at least 55% of exactly answered questions, and successfully passed the oral part of the exam. <p>Final grade is formed as follows: 10 (A) - 95-100 points, 9 (B) - 85-94 points, 8 (C) - 75-84 points, 7 (D) - 65 - 74 points, 6 (E) - 55-64 points, 5 (F, FX) - below 55 points.</p>
6. Recommended literature	<ol style="list-style-type: none"> 1. White SC, Pharoah MJ. Oral Radiology, Principles and Interpretation. Fourth Edition, Mosby; 2000. 2. Rasmus TF, Wiliamson GF. Current Oral and Maxillofacial imaging. W.B. Saunders Company; 1996
7. Exam questions	<p>Exam questions are corresponding to the theoretical and practical topics in the course weekly teaching plan in VII semester.</p>

WEEKLY TEACHING PLAN VII SEMESTER

Week	Course form and content	Number of classes
Week 1	<p>Lecture: Introduction and history of dental radiology Objectives and content of the subject dental radiology. Introduction to the subject, literature and teaching staff</p> <p>Practical exercises: Introduction with the practical exercise program. Tour to the radiological cabinet, basic concepts, equipment, principles of work</p>	<p>2</p> <p>1</p>
Week 2	<p>Lecture: Fundamentals of radiobiology Mechanism of action of ionizing radiation. the effect of ionizing radiation on the cell. Sensitivity of the organism to ionizing radiation.</p> <p>Practical exercises: Radiation protection, protection against infection Means of protection and protection ways of staff and patients from radiation and from infections</p>	<p>2</p> <p>1</p>
Week 3	<p>Lecture: The emergence and geometrical rules in the creation of an X-ray image. X-ray and other apparatus used in diagnostics in the dentomaxillofacial region. Absorption of X-rays. Physical-chemical consequences of X-ray absorption. Analysis of optical quality of radiograms. Projection effects, X-ray films and cassettes for dental radiography. Standard X-ray diagnostic devices. Special purpose devices. Digital radiography. Special methods. Division the X-ray imaging techniques.</p> <p>Practical exercises: Basic concepts of X-ray image, films and cassettes for dental radiography, types, composition, development, orientation. Introduction with the basic principles of working with dental X-ray appliances. Basic concepts about X-ray images</p>	<p>2</p> <p>1</p>

Week 4	<p>Lecture: Intraoral recording techniques: Intraoral periapical and bitewing technique, occlusal technique of recording</p> <p>Practical exercises: Intraoral techniques: demonstration and exercise of intraoral techniques</p>	<p>2</p> <p>1</p>
Week 5	<p>Lecture: Extraction techniques of X-ray imaging. Special recording techniques. Panoramic radiography, orthopantomography, cephalometric radiography, 3D dental radiography, scanography. Lateral technique, sagittal and profile technique of recording</p> <p>Practical exercises: Extraoral techniques: demonstrations of taking images and exercising of extra oral imaging techniques. Special techniques for recording-demonstrations and training of special techniques</p>	<p>2</p> <p>1</p>
Week 6	<p>Lecture: Digital radiography. Methods of digital radiography, methods of performance, indications, advantages and disadvantages</p> <p>Recording of special categories of patients (children, patients with edentulous jaws, patients with special needs, pregnant women)</p> <p>Practical exercises: Digital radiography: demonstration and exercise</p> <p>Seminars *:</p>	<p>2</p> <p>1</p>
Week 7	<p>Lecture: Radiological anatomy of dentomaxillofacial area. Anatomical details visible on dental radiographs. Normal radiological brightness and shadows.</p> <p>Practical exercises: intraoral X-ray images-normal anatomy, orientation and basic principles of analysis. Extraoral radiographs-normal anatomy, orientation and basic principles of analysis.</p> <p>Seminars *:</p>	<p>2</p> <p>1</p>

Week 8	Lecture: Radiological characteristics of dental caries and periapical infections.	2
	Practical exercises: Radiological characteristics of teeth and their environment - X-ray analysis of dental radiographs.	1
	Seminars *:	
Week 9	Lecture: Radiological examinations in preventive and pediatric dentistry	2
	Practical exercises: Radiological characteristics in preventive and pediatric dentistry - X-ray analysis of radiographs	1
	Seminars *:	

	Seminars *:	
Week 10	Lecture: Analysis of radiographic specificities in childhood	2
	Practical exercises: Analysis and radiological characteristics in childhood - X-ray analysis of radiographs	1
	Seminars *:	
Week 11	Lecture: Orthopantomography analysis in orthodontics - radiological characteristics	2
	Practical exercises: Radiological diagnostics in orthodontics - orthopantomography analysis	1
	Seminars *:	
Week 12	Lecture: Radiology in periodontology and oral medicine - radiological characteristics	2
	Practical exercises: Radiological characteristics in periodontology and oral medicine. - X-ray analysis of radiographs	1
	Seminars *:	

Week 13	Lecture: Radiological aspects in fixed prosthodontics - radiological characteristics	2
	Practical exercises: radiological characteristics and analysis in a fixed prosthodontics - X-ray analysis of radiographs	1
	Seminars *:	
Week 14	Lecture: Radiological aspects in dental implantology - radiological characteristics	2
	Practical exercises: radiological diagnosis and differential diagnostics - X-ray analysis of radiographs	1
	Seminars *:	
Week 15	Lecture: Radiological aspects in oral surgery - radiological characteristics	2
	Practical exercises: radiological diagnosis and differential diagnostics - X-ray Analysis of radiographs	1
	Seminars *:	
week 17-18	Final exam	
week 19-20	Final exam/retake	

*** one seminar work is scheduled by the implementation plan. Students seminar work takes place during the semester in groups of 5 students, and is represented and evaluated in terms of practical classes.**

Code: SFSIM0708E		COURSE TITLE: PEDIATRICS	
Level of study: undergraduate	Year: IV	Semester: VII	ECTS credits: 6
Course status: elective		Total classes: 30	
Professor in charge:			
Entry requirements: no entry requirements			
1. Course objectives:	<p>To acquire knowledge from the anamnesis and physical examination of newborns, infants, children and adolescents, their growth and development, their ability to reach full potential through the adult period. Acquire knowledge about prevention, recognition and treatment of a sick child</p> <p>To acquire knowledge from training, or habilitation of children with developmental disabilities in terms of prevention, treatment and rehabilitation.</p>		
2. Course purpose:	<p>The purpose of this course is to train the student, through properly taken anamnesis and clinical examination, to assuredly establish the diagnosis of a sick child.</p> <p>Student should direct further course of recognition and treatment of the diseased child through the recognized pediatric protocols. In lectures, interactive classes and practical exercises, theoretical knowledge is adopted and the skills of examining an ill child within organic systems is overwhelmed from the doctrine of children propedeutics.</p>		
3. Learning outcomes:	<p>Through the course content the student will acquire the following knowledge through the modules of certain pediatric subdisciplines:</p> <p>INTRODUCTION IN PEDIATRICS AND PREVENTIVE PEDIATRICS Module 1. Organization of the work of the Pediatric Clinic Module 2 Preventive pediatrics</p> <p>PULMONOLOGY, ALLERGOLOGY AND IMMUNOLOGY Module 1 Upper respiratory airways diseases Module 2. Obstructive pulmonary diseases Module 3. Pneumonia</p>		

Module 4. Cystic fibrosis
Module 5. Tuberculosis
Module 6. Allergic diseases
Module 7. Immunological diseases

CARDIOLOGY

Module 1. Congenital heart defects
Module 2. Diagnostic methods in cardiology
Module 3. Cardiovascular infections
Module 4. Cardiac arrhythmias
Module 5. Arterial hypertension
Module 6. Cardiac insufficiency

RHEUMATOLOGY

Module 1. Arthritis associated with infection: acute rheumatic fever and poststreptococcal arthritis
Module 2. Basic concept of rheumatic diseases in children
Module 3. Juvenile arthritis
Module 4. Systemic connective tissue diseases

GASTROENTEROHEPATOLOGY

Module 1. Symptoms and diagnostic procedures in gastroenterohepatology
Module 2. Diseases of esophagus, stomach and duodenum
Module 3. Small and large intestine diseases. Inflammatory intestinal diseases
Module 4. Liver diseases
Module 5. Disturbance of metabolism of water and electrolytes
Module 6. Nutrition and nutritional disorders

NEPHROLOGY

Module 1. Symptoms and diagnostic procedures in pediatric nephrology
Module 2. Infections of the urinary system
Module 3. Pediatric aspects of diagnostics and conservative treatment of anomalies of the urinary system
Module 4. Neurogenic dysfunction of the urinary bladder
Module 5. Glomerulonephritis
Module 6. Nephrotic syndrome with minimal damage
Module 7. Tubulopathies
Module 8. Urolithiasis
Module 9. Acute renal insufficiency
Module 10. Chronic renal insufficiency

NEONATOLOGY

Module 1. Prenatal and perinatal period
Module 2. Healthy newborn
Modules 3 and 4. Sick newborn

NEUROLOGY

Module 1. Symptoms and diagnostic procedures in pediatric neurology
Module 2. Malformations of central nervous system (CNS), chromosomal abnormalities, neurocutaneous syndromes and skull malformations
Module 3. Neurological consequences of prenatal, perinatal and early postnatal effects on brain development
Module 4. Metabolic and hereditary degenerative disorders of CNS
Module 5. Postnatal external CNS insults
Module 6. Vascular CNS disorders.
Module 7: Paroxysmal CNS disorders.
Module 8. Neuromuscular diseases
Module 9. Developmental and intellectual disorders of childhood.

ENDOCRINOLOGY

Module 1. Growth factors
Module 2. Growth dynamics by developmental periods
Module 3. Etiopathogenesis of Diabetes mellitus type 1
Module 4. Diagnostics of co-morbidity in obese pediatric patients
Module 5. Etiological aspects of thyroid function disorders
Module 6. Hypoparathyroidism
Module 7. Diagnostic-therapeutic aspect of hypopituitarism

HEMATOLOGY

Module 1. Erythropoiesis diseases
Module 2. Platelet disease and coagulation disease
Module 3. Hemophilia

ONCOLOGY

Module 1. Leukemia in the childhood
Module 2. Solid tumors in the childhood
Module 3. Early and late consequences of chemotherapy

Through this course subject the student will adopt the following knowledge about:

1. Introduction to pediatrics and preventive pediatrics
2. Pulmonology and allergology
3. Cardiology
4. Rheumatology
5. Gastroenterohepatology
6. Nutrition of the child
7. Nephrology
8. Neonatology
9. Neurology
10. Endocrinology
11. Hematology
12. Oncology

The skills that a student needs to know to practically perform (knows how and does):

	<ol style="list-style-type: none"> 1. Basic parameters of vital functions: temperature, pulse, respiration, blood pressure 2. Anthropometric measures: body weight, body height, head circumference. 3. Examination of the skin turgor 4. Palpation of lymph nodes in predilection sites 5. Examination of the head, neck, thorax, abdomen, genitals, extremities. 6. Examination of meningeal signs. <p>After attended classes the student should adopt the following attitudes:</p> <ol style="list-style-type: none"> 1. Proper taking of pediatric anamnesis 2. Good knowledge of the physical examination of a sick child 3. Knowing the basic laboratory and diagnostic procedures that apply to the sick child 4. Knowledge of basic therapeutic and preventive possibilities in pediatric practice.
<p>4. Learning methods:</p>	<p>Course content will be performed in lectures and practical exercises. Methods of teaching are:</p> <ul style="list-style-type: none"> - interactive, theoretical and practical teaching - working in small groups of students - for practical teaching the further methods will be used: "Four Steps by Peyton", problem based learning, OSCE - consultations <p>Within the scheduled number of classes, forms of continuous knowledge will be held (practical exams I, II and III, and partial exams I, II and III).</p>

<p>5. Methods for student knowledge assessment</p>	<p>Student's knowledge assessment will be carried out continuously during the semester and through the final exam.</p> <p>Continuous knowledge testing Continuous examination of knowledge includes partial exams I, II and III, and practical exams I, II and III.</p> <p>Practical exam I will be taken after the first block of practical course teaching from the course subject areas: Introduction to Pediatrics, Preventive Pediatrics, Pulmonology, Allergology, Immunology, Cardiology and Rheumatology. The evaluation of the acquired skills will be carried out through the fulfillment of the tasks previously defined in the checklist list. In each course subject area, the student will receive one checklist with defined five tasks. Each task in the checklist is evaluated positively or negatively (+/-).</p> <p>Practical exam II will be taken after the second block of practical course teaching from the course subject areas: Gastroenterohepatology, Child nutrition, Nephrology, Neonatology. The evaluation of the acquired skills will be carried out through the fulfillment of the tasks previously defined in the checklist list. In each course subject area, the student will receive one checklist with</p>
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defined five tasks. Each task in the checklist is evaluated positively or negatively (+/-).

Practical exam III will take place after the third block of practical course teaching from the course subject areas: Neurology, Endocrinology, Hematology and Oncology. The evaluation of the acquired skills will be carried out through the fulfillment of the tasks previously defined in the checklist list. In each course subject area, the student will receive one checklist with defined five tasks. Each task in the checklist is evaluated positively or negatively (+/-). After all conducted practical exams, the obtained labels +/- are translated into points.

Two labels + from the checklists are valued as 1 point and are added to the total number of points scored in all practical exams.

Two labels - from the checklists are valued as one negative point that is deducted from the total number of points scored in all practical exams.

The total number of points that a student can score in this part of the continuous knowledge test is 30. The student must score at least 16.5 points in order to consider the practical exam as passed. The number of scored points is added to the other achieved points in forming the final grade.

Partial exam I includes examinations from the same fields as they were in practical exam I, and is in a written form consisting of 40 MCQ questions. Each correct answer to the MCQ question is valued by 0.5 points. The maximum number of points that a student can score through this form of exams is 20. In order to pass this exam, a student must score at least 11 points. The scored number of points is added to the other achieved points in forming the final grade. If the student has not passed the partial exam, he/she has to retake it in the final exam.

Partial exam II includes examinations from the same fields as they were in practical exam II, and is in a written form consisting of 50 MCQ questions. Each correct answer to the MCQ question is valued by 0.5 points. The maximum number of points that a student can score through this form of exam is 25. In order to pass this exam, a student must score at least 14 points. The scored number of points is added to the other achieved points in forming the final grade. If the student has not passed the partial exam, he/she has to retake it in the final exam.

Partial exam III includes examinations from the same fields as they were in practical exam III, and is a written form consisting of 50 MCQ questions. Each correct answer to the MCQ question is valued by 0.5 points. The maximum number of points that a student can score through this form of exam is 25. In order to pass this exam, a student must score at least 14 points. The scored number of points is added to the other achieved points in forming the final grade. If the student has not passed the partial exam, he/she has to retake it in the final exam.

	<p>Final exam If the student has not passed any of the practical and partial exams during the semester he/she has to retake them in the final exam. The condition for taking the written theoretical part of the final exam has been previously passing of the practical part of the exam.</p> <p>Forming the final grade The total number of scored points, obtained through all forms of continuous knowledge testing, is translated into the final grade as follows: 10 (A) - 95-100 points; 9 (B) - 85-94 points; 8 (C) - 75-84 points; 7 (D) - 65-74 points; 6 (E) - 55-64 points; 5 (F, FX) - under 55 points.</p>
6. Recommended literature	<ol style="list-style-type: none"> 1. Nelson. Textbook of Pediatrics. Philadelphia: W.B. Saunders Company; 2004. 2. eMedicine-Pediatrics; available at: http://emedicine.medscape.com/pediatrics_general
7. Exam questions and weekly teaching plan	Exam questions and weekly teaching plan are corresponding to the course learning outcomes and knowledge assessment methods.

FIFTH YEAR COMPULSORY COURSES

Code: SFSOS0901E	Course title: PEDODONTICS WITH PRIMARY PREVENTION	
Course level: undergraduate	Year: V	Semester: IX and X
Course status: obligatory	ECTS credits: 9	Total classes: 150 (L60 + P90)
Professor in charge	Head of the Department	
Entry requirements	No entry requirements for attending this course.	

1. Course objectives	<p>To realize and understand biological mechanisms of oral health protection.</p> <p>To realize, understand and use methods for diagnosis and exclusion of risks for oral diseases appearance.</p> <p>To realize and understand the role of nutrition in general and oral health, and also to be capable to give proper dietary instructions to the patients. To realize and understand the role of oral hygiene maintenance for general and oral health, and to be capable to give adequate oral hygiene instructions to the patients.</p> <p>To realize, understand and know how to indicate and proper use of fluorides and fissure sealants.</p> <p>To realize, understand, and know the significance of preventive measures in cariology, periodontology, orthodontics and dental prosthetics.</p> <p>To acquire basic knowledge in all aspects of diagnosis and treatment of all non-physiological conditions in children and adolescents.</p> <p>To acquire the knowledge about physical and psychological growth and development from conception until the end of adolescence.</p> <p>To know and understand the causes of appearance and clinical signs of non-physiological conditions in children and adolescents. To know and understand methods for clinical treatment of nonphysiological conditions in children and adolescents.</p>
2. Course purpose	<p>To capacitate students to realize, understand and use methods for diagnosis and exclusion of risks for oral diseases appearance, and to overwhelm the tests for risk assessment.</p> <p>To capacitate students to give the patients proper advices about nutrition, oral hygiene maintenance, and prevention of dental traumas, oral lesions and temporomandibuar joint diseases.</p> <p>To capacitate students for autonomous implementation of preventive measures: professional removal of dental plaque and calculus, application of highly concentrated fluorides, fissure sealing, making of mouthguards, and to be capable of using interceptive orthodontic measures.</p> <p>To capacitate students for recognizing of normal growth and development, from the conception until the end of adolescence, and to be capable to perceive the deviations in this complex process as well as to find out the causes of these deflections.</p> <p>To capacitate students for performing of clinical treatments in order to solve above mentioned conditions, with the application of modern dental materials and treatment techniques.</p>
3. Course outcomes	<p>After lectures and practicals students will be capable to autonomously plan and conduct preventive measures for patients of all ages, and to be</p>
	<p>introduced in implementation of preventive measures in medically compromised and disabled patients. Additionally students have to know: to identify physiological growth and development from conception until the end of adolescence;</p> <p>to know how to recognize the states and causes of non-physiological conditions in children and adolescents;</p> <p>to know clinical methods for therapeutical solving of these conditions, with the knowledge of dental materials needed for the treatments.</p>

4. Learning methods	<p>The course content will be presented in form of:</p> <ul style="list-style-type: none"> - ex cathedra lectures for all students; - practical classes - clinical exercises for students within groups, according to standards; - consultations; - individual work of students; seminars (problem based learning) in a form of interactive studying.
5. Conditions for taking the exam	<p>During the course period the presence of students to every form of learning methods will be noted, which are compulsory. It is allowed to be absent from 10% of total number of classes of each of learning methods forms (separately one from another form, and also separately for IX and X semester) in order that the presence to the course could be verified by signature of the professor in charge at the end of each semester. If there are extraordinary justified reasons for absence, students are allowed to make up to 20% missed classes out of total number of classes, followed by written proof for these actions (shorter illness, student activities in scientific and other kind of projects, workshops, meetings, family reasons, for example).</p> <p>If the student absence from the total number of classes of this course is higher than it is allowed (separately for each of the learning forms, and also separately for IX and X semester), the course presence could not be verified by a signature from the professor in charge. These students have no right to take the final exam at the end of X semester.</p>
6. Methods of student knowledge assessment	<p>Students are able to score maximally 100 points at the end of X semester, after evaluation of their achievements from all kind of learning forms during the course period.</p> <p>Final grade will be based upon further elements:</p> <p>Individual activity of each student will be continuously evaluated maximally by 10 points per semester, which is maximally 20 points at the end of X semester.</p> <p>During the IX and X semester there will be two partial exams in total, one partial exam per semester. Each of partial exams is evaluated maximally by 15 points, which is maximally 30 points in total.</p>

	<p>First partial exam will take place in 8th week of course period in IX semester, and covers the course content from 1st until 7th week of this semester.</p> <p>Second partial exam will take place in 2nd week of course period in X semester, and covers the course content from 8th until 15th week of IX semester.</p> <p>If the students did not pass any of the partial exam(s), they have to do it again within the final exam.</p> <p>Final exam will take place after X semester, which is evaluated maximally by 50 points, and covers course content from the complete X semester.</p> <p>Partial exams and final exam will take place in oral forms. Answers to each of the questions in partial or final exam should be evaluated at least with 6 (E), in order to pass each of the exams.</p> <p>After scoring all the activities during the IX and X semester, and after passing all exams, students could obtain one of the following grades:</p> <p>A (10) = 95-100 points; B (9) = 85-94 points; C (8) = 75-84 points; D (7) = 65-74 points; E (6) = 55-64 points; F, FX (5) = under 55 points, which means that the exam is not passed.</p>
7. Literature	<p>Required literature:</p> <ol style="list-style-type: none"> 1. Harris NO, Garcia-Godoy FG, Nathe CN. Primary Preventive Dentistry. Eighth edition. Pearson; 2013. 2. Dean JA, Avery DR, McDonald RE. Dentistry for the Child and Adolescent. Ninth edition. St. Louis: Mosby; 2011. 3. Koch G, Poulsen S. Pediatric Dentistry. A Clinical Approach. Second edition. Wiley-Blackwell; 2009. Recommended literature: 4. Casamassimo PS, Fields HW, McTigue DJ, Nowak AJ. Pediatric Dentistry. Infancy through adolescence. Fifth edition. St. Louis: Elsevier; 2013. 5. Cameron AC, Widmer RP. Handbook of Pediatric Dentistry. Fourth edition. St. Louis: Mosby; 2013. 6. Welbury R, Duggal M. Paediatric Dentistry. Third edition. Oxford: Oxford University Press; 2005. 7. Avery JK, Chiego DJ. Essentials of Oral Histology and Embryology. A Clinical Approach. Third edition. St. Louis: Mosby; 2006. 8. Little JW, Falace DA, Miller CS, Rhodus NL. Dental Management of Medically Compromised Patient. Seventh edition. St. Louis: Mosby; 2008.

Week	Course form and content IX SEMESTER	Number of classes
Week 1	<p>Lecture: Introduction to preventive dentistry. Significance and tasks. A relationship between preventive dentistry and other dental and medical disciplines. Basic preventive measures.</p> <p>Practicals: Introduction with working areas in the department, the diagnostic protocol and records, acquaintance with the program of practicals and methods of evaluation of activities during practical classes.</p> <p>Clinical medical and dental history and clinical examination, with emphasis on knowledge, habits, behavior and measures taken to maintain good oral health. Evaluation of health habits, behavior, development and general health status of the patient. Mutual clinical examinations between students.</p>	2 3
Week 2	<p>Lecture: Physiology of the oral cavity and characteristics of healthy tissues of the oral cavity.</p> <p>Practicals: Diagnostics of health of oral mucous membranes, periodontal tissues (appearance, color, shape, size, texture, periodontal indexes), teeth (dentition type, number, shape, size, arrangement, color, developmental disturbances, DMFT). Assessment of quantity and quality of secreted saliva, buffer capacity. Mutual clinical examinations between students</p>	2 3
Week 3	<p>Lecture: Biological mechanisms for the protection of the oral cavity.</p> <p>Practicals: Diagnostics of health of oral mucous membranes, periodontal tissues (appearance, color, shape, size, texture, periodontal indexes) and teeth (dentition type, number, shape, size, arrangement, color, developmental disturbances, DMFT). Assessment of quantity and quality of secreted saliva, buffer capacity. Mutual clinical examinations between students.</p>	2 3
Week 4	<p>Lecture: Dental plaque and oral microbial flora</p> <p>Practicals: Methods of dental plaque detection and removal. Evaluation indices of oral hygiene status. Mutual clinical examinations between students and/or examinations of the patients.</p>	2 3
Week 5	<p>Lecture: Nutrition. Systemic and local effects. The cariogenic potential of food and its measurement. Carbohydrates. Artificial sweeteners. Caries protective action of food. Dietary recommendations.</p> <p>Practicals: Nutrition diary, motivation for proper nutritive habits and correction of mistakes. Mutual clinical examinations between students.</p>	2 3

Week 6	<p>Lecture: Dental caries. Etiology and pathogenesis of dental caries. Macroscopic and microscopic characteristics of the early carious lesion (reversible stage). Dental erosions, etiology, prevention.</p> <p>Practicals: Demonstration of a detailed examination of hard dental tissues status, clinical and radiological diagnostics of early carious lesions, as well as of dental erosions and abrasions. Demonstration of determination of microorganisms in saliva. Mutual clinical examinations between students and/or examinations of the patients.</p>	2 3
Week 7	<p>Lecture: Etiology, pathogenesis and diagnostics of periodontal diseases.</p> <p>Practicals: Demonstration of gingival and periodontal indexes. Evaluation of gingival and periodontal status: Gingival Index (Loe and Silness, 1963), Simplified Gingival Index (Lindhe, 1983), Papilla Bleeding Index (Saxer and Muhleman, 1975), Community Periodontal Index of Treatment Needs (CPITN - WHO). Calculating of percentages of gingivitis existence per patient based on assessment by Simplified Gingival Index. Mutual clinical examinations between students.</p>	2 3
Week 8	<p>Lecture: Diagnostics and methods for risk assessment for the onset of the periodontal diseases.</p> <p>Practicals: Analysis and comparison of condition and habits in patients obtained by taking history and clinical examination (oral hygiene status, DMFT, salivary characteristics and periodontal status). Mutual clinical examinations between students and/or examinations of the patients.</p>	2 3
Week 9	<p>Lecture: Basic principles of prevention of dental caries and periodontal diseases as the most common orodental diseases.</p> <p>Practicals: Analysis and comparison of condition and habits in patients obtained by taking history and clinical examination (oral hygiene status, DMFT, salivary characteristics and periodontal status). Mutual clinical examinations between students and/or examinations of the patients. Clinical examination, analysis of oral health status, preventive measures planning.</p>	2 3
Week 10	<p>Lecture: Oral hygiene - mechanical and chemical devices and agents for plaque control.</p> <p>Practicals: Demonstration of the maintenance of proper oral hygiene using mechanical and chemical devices and agents. Teeth brushing techniques, proper use of dental floss and interdental brushes. Training and motivation of patients for proper continuous maintenance of oral hygiene. Implementation of mutual plaque removal techniques between students and/or in</p>	2 3

	patients, and training for proper oral hygiene maintenance techniques.	
Week 11	Lecture: Fluorides in caries prevention. General characteristics. Mechanism of action. Endogenous and exogenous fluoridation methods. Toxicity of fluorine. Practicals: Demonstration of local application of fluorides (solutions, gels, varnishes), prescription of fluorides. Clinical history and examination of patients, diagnostics of oral health status, removal of soft and hard dental deposits, instructions for oral hygiene maintenance, local fluoridation.	2 3
Week 12	Lecture: Fissure sealing as a prophylactic measure. Indications and contraindications. Techniques and materials. Practicals: Demonstration of fissure sealing on a patient or model. Clinical history and examination of patients, diagnostics of oral health status, removal of soft and hard dental deposits, instructions for oral hygiene maintenance, local fluoridation, fissure sealing, treatment of early carious lesions.	2 3
Week 13	Lecture: Interceptive orthodontics and preventive prosthetics. Practicals: Clinical history and examination of patients, diagnostics of oral health status, removal of soft and hard dental deposits, instructions for oral hygiene maintenance, local fluoridation, fissure sealing, treatment of early carious lesions.	2 3
Week 14	Lecture: Prevention of dental traumas. Practicals: Clinical history and examination of patients, diagnostics of oral health status, removal of soft and hard dental deposits, instructions for oral hygiene maintenance, local fluoridation, fissure sealing, treatment of early carious lesions.	2 3
Week 15	Lecture: Preventive measures for specific patient groups (people with mental and physical disabilities and disorders, medically compromised patients, pregnant women). Practicals: Clinical history and examination of patients, diagnostics of oral health status, removal of soft and hard dental deposits, instructions for oral hygiene maintenance, local fluoridation, fissure sealing, treatment of early carious lesions.	2 3

Week	Course form and content X SEMESTER	Number of classes
Week 1	Lecture: Introduction to pediatric dentistry and oral health of children and adolescents. Indices of oral health.	2 3

	Practicals: Clinical history and examination of patients, treatment plan, preventive measures, restorative treatment of primary and young permanent teeth, extraction of primary teeth.	
Week 2	Lecture: Physical and psychological growth and development of a child. Practicals: Clinical history and examination of patients, treatment plan, preventive measures, restorative treatment of primary and young permanent teeth, extraction of primary teeth.	2 3
Week 3	Lecture: Taking clinical history and examination of a child patient for the first time in dental office. Psychological types of children. Practicals: Clinical history and examination of patients, treatment plan, preventive measures, restorative treatment of primary and young permanent teeth, extraction of primary teeth.	2 3
Week 4	Lecture: Behavior problems in dental office and behavioral control management techniques. Techniques for prevention and reduction of dental fear and anxiety. Practicals: Clinical history and examination of patients, treatment plan, preventive measures, restorative treatment of primary and young permanent teeth, extraction of primary teeth.	2 3
Week 5	Lecture: Pain and management of pain control in children and adolescents. Practicals: Clinical history and examination of patients, treatment plan, preventive measures, restorative treatment of primary and young permanent teeth, extraction of primary teeth.	2 3
Week 6	Lecture: Tooth development, eruption and exfoliation. Disturbances in tooth eruption. Practicals: Clinical history and examination of patients, treatment plan, preventive measures, restorative treatment of primary and young permanent teeth, extraction of primary teeth.	2 3
Week 7	Lecture: Anomalies of number, size and shape, position and color of teeth. Practicals: Clinical history and examination of patients, treatment plan, preventive measures, restorative treatment of primary and young permanent teeth, extraction of primary teeth.	2 3
Week 8	Lecture: Developmental tooth defects (anomalies of tooth structure). Practicals: Clinical history and examination of patients, treatment plan, preventive measures, restorative treatment of primary and young permanent teeth, extraction of primary teeth.	2 3

Week 9	<p>Lecture: Dental caries (etiology, pathogenesis). Early childhood caries.</p> <p>Practicals: Clinical history and examination of patients, treatment plan, preventive measures, restorative treatment of primary and young permanent teeth, extraction of primary teeth.</p>	2 3
Week 10	<p>Lecture: Restorative techniques and minimally invasive therapy. Stainless steel ready-made crowns.</p> <p>Practicals: Clinical history and examination of patients, treatment plan, preventive measures, restorative treatment of primary and young permanent teeth, extraction of primary teeth.</p>	2 3
Week 11	<p>Lecture: Restorative dental materials in pediatric dentistry.</p> <p>Practicals: Clinical history and examination of patients, treatment plan, preventive measures, restorative treatment of primary and young permanent teeth, extraction of primary teeth.</p>	2 3
Week 12	<p>Lecture: Dental caries risk assessment.</p> <p>Practicals: Clinical history and examination of patients, treatment plan, preventive measures, restorative treatment of primary and young permanent teeth, extraction of primary teeth.</p>	2 3
Week 13	<p>Lecture: Oral pathology-periodontal diseases in children and adolescents.</p> <p>Practicals: Clinical history and examination of patients, treatment plan, preventive measures, restorative treatment of primary and young permanent teeth, extraction of primary teeth.</p>	2 3
Week 14	<p>Lecture: Oral pathology-diseases of oral mucous membranes and soft tissues in children and adolescents.</p> <p>Practicals: Clinical history and examination of patients, treatment plan, preventive measures, restorative treatment of primary and young permanent teeth, extraction of primary teeth.</p>	2 3
Week 15	<p>Lecture: The importance of prevention in pediatric dentistry</p> <p>Practicals: Clinical history and examination of patients, treatment plan, preventive measures, restorative treatment of primary and young permanent teeth, extraction of primary teeth.</p>	2 3
Week 17-18	Final exam	
Week 19-20	Final exam/retake	

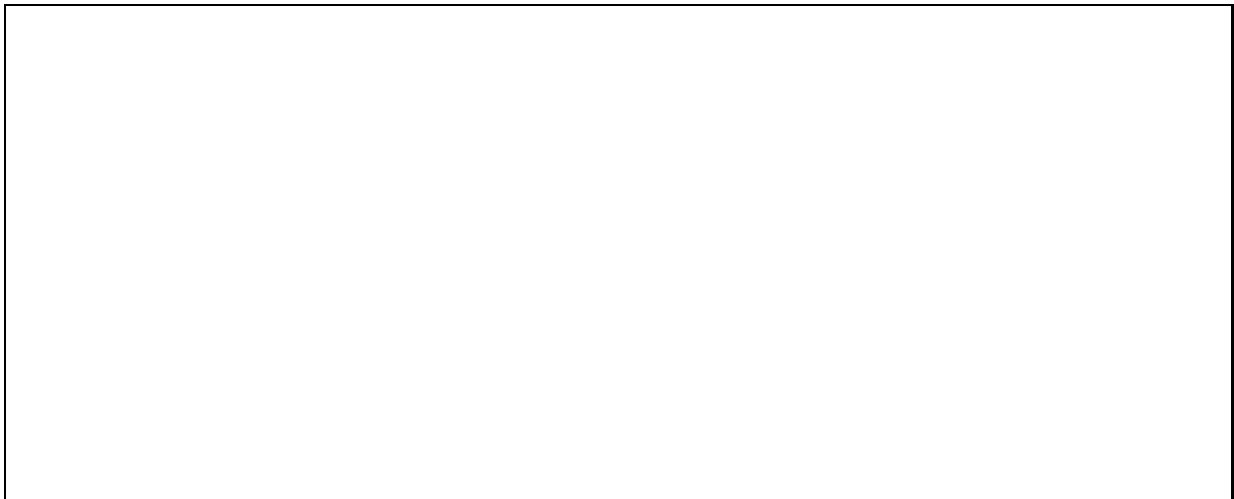
Code: SFSOS0902E	COURSE TITLE: DENTOFACIAL ORTHOPEDICS - ORTHODONTICS		
Level: Undergraduate	Year: V	Semester: IX and X	ECTS credits: 10
Status: Obligatory			Total classes: 165 (L 60 + P 105)
Course head:	Head of the department		
Requirements for the course: Defined by the Law			
1. Aims of the course	The aim is to diagnose deviations from normal craniofacial growth and development, to observe the presence of skeletal, dental or functional anomalies.		
2. Course content and Learning Objectives	The purpose of the course is to study the etiopathogenesis of skeletal, dental and functional anomalies so that doctor of dental medicine can refer patients to further specialist orthodontic treatment. Moreover, to inform the DDM about orthodontics appliances.		
3. Learning outcomes	<p>By the end of the course, the student will</p> <p>Acquire the knowledge in: Concepts of growth and development Dental cast analysis Radiographic procedures in orthodontics (2d, 3d)</p> <p>Orthodontic diagnostics procedures and problem list development Malocclusions (types, etiology,..)</p> <p>Side effects of orthodontic treatment Acquire the skills in: growth assessment (CVM, hand-wrist analysis, dental age analysis) recognize anomalies in number or shape of the teeth, dental cast analysis x-ray analysis Photo -analysis</p> <p>Acquire competence in: Index of Orthodontic Treatment Needs (IOTN) Interceptive and preventive orthodontic measurement</p>		
4. Teaching and learning methods	Lectures, case analysis, discussion, clinical practice		

<p>5. Assessment methodology</p>	<p>Student knowledge is assessed during semesters. At the end of the course, there is the final exam.</p> <p>All scheduled written and oral exams during the semesters are mandatory.</p> <p>IX semester: testing the knowledge in growth and development, and etiology.</p> <p>X semester: testing the knowledge in malocclusions and testing the skills in cast analysis.</p> <p>The final exam is written (essay) and practical work on the patient (scoring the IOTN)</p> <p>Skill Scoring and Methods of Assessment</p> <p>During the IX semester</p> <p>Test 1.- Growth and development of craniofacial system (during 8 weeks) written test (multiple choice question): number of points scored 0 -7</p> <p>Partial exam .-Diagnostics (during the 14th week) - Written test consisting of morphological cast analysis(depending on the model can be primary, mixed or permanent dentition), 1 model: number of points scored 0 -8</p> <p>During the X semester</p> <p>Testing 2- etiology (during 8 week) written test (multiple choice question): number of points scored 0 -7</p> <p>Partial exam - Clinical examination of the patients (during the 14th week) - Written test consisting of clinical examination of the patient, 1 patient: number of points scored 0 - 8</p> <p>During the course of the IX and X semesters, the maximum of 30 points can be achieved on the knowledge tests (test and partial examination).</p> <p>Student activity will be recorded individually.</p> <p>IX. semester</p> <p>Dental status on the model (self-written and documented) - 1 point</p> <p>Morphological cast analysis (self-written and documented) - 2 points</p> <p>X semester</p>
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	<p>Orthodontic treatment assessment (IOTN) on patient (self-written and documented) - 2 points</p> <p>Students can achieve 20 points (9 in the IX semester and 10 in the X semester) on the basis of the exercises.</p> <p>Final exam - Written essay.</p> <p>The student corresponds to the essay question (maximum number of points 50). In addition to a clinical examination of the patient with the aim of assessing the need for orthodontic treatment (maximum number of points 10).</p> <p>By completing the work, the student can maximize 50 points.</p>
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Scoring	Scale in points					
	0	1-5	6-10	11-16	17-22	23-25
Idea and logic of essay	Totally wrong theme Insufficiently elaborated topic	Very Low theme elaboration	Low theme elaboration	Good theme elaboration	Very good theme elaboration	Very good theme elaboration High level of elaboration and logic, multidisciplinary approach etc.
Essay structure	No structure	Very low essay structure	Low essay structure	Good essay structure	Very good essay structure	High level of essay structure
Clarity and style	Absence of complete sentences Poor and / or inaccurate choice of words Serious writing mistakes	Very few completed sentences	Some completed sentences	Some completed sentences Good or accurate choice of words	Clarity of text is present Good or accurate choice of words	High level of Clarity of text is present

Activity	Maximal points
Continuing evaluation during semester	75
Final exam	25
Total	100



Final mark:

Points	Mark
0 - 54	5
55 - 64	6
65 - 74	7
75 - 84	8
85 - 94	9
95 - 100	10

6. Literature:

1. Proffit WR, Fields HW, Sarver DM. Contemporary orthodontics, 4th edition. St. Louis: Mosby; 2006. (or newer edition)
2. E-learning content

Week	WEEKLY TEACHING PLAN for IX SEMESTER: Teaching methodology: L (lectures), P (practice)	
Week 1.	L: Intro (About orthodontics, orthodontic history and ethics)	2
	P: Intro (orthodontics laboratory)	3

Week 2.	L: Theories of growth and development P: Making impressions and models	2 3
Week 3.	L: Growth and development (skull, face and jaws) P: Orthodontics models (2D; 3D)	2 3
Week 4.	L: Growth and development of occlusion P: Removable appliances (how is made)	2 3

Week 5.	L: Growth and development of occlusion P: Removable appliances (how is made)	2 3
Week 6.	L: Prediction and dynamics of growth and development P: Dentition analysis (permanent, mixed and primary teeth, number, shapes, etc.)	2 3
Week 7.	L: Disturbances in growth and development P: Dentition analysis (permanent, mixed and primary teeth, number, shapes, etc.)	2 3
Week 8.	L: Orthodontic diagnosis P: Dentition analysis (permanent, mixed and primary teeth, number, shapes, etc.) Knowledge assessment	2 3
Week 9.	L: Radiology in orthodontics P:: Analysis of OPG	2 3

Week 10.	L: Age determination (biology vs. chronology) P: Methods of age determination	2 3
Week 11.	L: Etiology of Dentofacial anomalies P: C Methods of age determination	2 3
Week 12.	L: Etiology of Dentofacial anomalies P: Dentition analysis (permanent, mixed and primary teeth, number, shapes, etc.)	2 3
Week 13.	L: Etiology of Dentofacial anomalies P: Dentition analysis (permanent, mixed and primary teeth, number, shapes, etc.)	2 3
Week 14.	L: Classification of Dentofacial anomalies P: Dentition analysis (permanent, mixed and primary teeth, number, shapes, etc.) Knowledge assessment	2 3
Week 15.	L: Epidemiology of malocclusion P: Analysis of face (2D,3D)	2 3
Week 17.	Final exam	
Weeks 18.-20.	Makeup exam and summer school (if necessary)	

Week	WEEKLY TEACHING PLAN X SEMESTER: Teaching methodology: L (lectures), P (practice)	
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Week 1.	L: Orthodontic treatment planning P: clinical examination of the patients	2 4
Week 2.	L: Radiology in orthodontics (2D; 3D) - indication, doses etc. P: radiology - cephalometrics	2 4
Week 3.	L: Orthodontic treatment planning (limitations, special problems, etc.) P: Clinical examination of the patients	2 4
Week 4.	L: Class I malocclusion P: Dental cast analysis	2 4
Week 5.	L: Class I malocclusion P: Dental cast analysis	2 4
Week 6.	L: Class II malocclusion P: Dental cast analysis	2 4
Week 7.	L: Class II malocclusion P: Dental cast analysis	2 4
Week 8.	L: Class III malocclusion P: IOTN (clinical work) Knowledge assessment	2 4

Week 9.	L: Vertical skeletal/ dental anomalies P: IOTN (clinical work)	2 4
Week 10.	L: Transversal skeletal/ dental anomalies P: IOTN (clinical work)	2 4
Week 11.	L: Multidisciplinary work P: IOTN (clinical work)	2 4
Week 12.	L: Biomechanics (Biologic basis of orthodontics therapy, mechanical principles, etc.) P: IOTN (clinical work)	2 4
Week 13.	L: Retention and relapse P: IOTN (clinical work)	2 4
Week 14.	L: Orthodontic treatment (interceptive, early..) P: IOTN (clinical work) Knowledge assessment	2 4
Week 15.	L: Early orthodontic treatment (comprehensive, adult..) P: IOTN (clinical work)	2 4
Week 17.	Final exam	
Weeks 18.-20.	Makeup exam and summer school (if necessary)	

Code: SFSOS0903E	Course title: FIXED PROSTHODONTICS		
Level:Undergraduate	Year:V	Semester: IX and X	Total ECTS credits:12
Status:Obligatory			Total classes: 210
Professor in charge:	Head of Department		
Requirements for class attending:The conditions are regulated by the rules of study for the Integrated Study Program of the first and second cycle of studies at the higher education institutions of the University of Sarajevo.			
Semester: IX FIXED PROSTHODONTICS			
1.Course objectives	Prepare students for work in the field of fixed prosthodontics		
2.Purpose of the course	Teach the student to corectly do the tooth preparation on the phantom for the acceptance of the fixed prosthodontics replacements.To use a turbine drill, to corectly set the indication of the toot for a certain type of preparation, to select bur for a correct , indicated preparation , to properly do the tooth preparation and design of the preparation line,,to take a high quality impression of the working and antagonistic surface , to do the try- in of the fixed prosthodontics replacement.		
3.Learning outcomes	Through the teaching of the course of fixed prosthodontics the student will receive following knowledge He will master the theoretical and professional skills, practically using the equipment of the clinic, to consider the overall procedure for the tooth preparation for the production of fixed prosthodonticsreplacement,		

	<p>preparation, taking the impression, try- in evaluation phase, cementation.</p> <p>Skills a student needs to know independently (he knows what he does)</p> <p>Receive and clinically examine the patient Prepare a patient for dental restorations</p> <ol style="list-style-type: none"> 1. Individually handle of the equipment 2. Individually select the appropriate bur for preparation 3. Individually do the tooth preparation for the indicated prosthodontics restoration 4. Individually take the proper impression of the prepared tooth 5. Individually try the fixed prosthodontics restoration by phases 6. Individually fix the fixed prosthodontics restoration temporarily and permanently 7. Give the patient guidance on the use of fixed prosthodontics restoration <p>After attending classes, the student should adopt the attitudes Fully contemplating the importance of proper work in the patient's mouth in order to create an artificial crown on the patient's tooth</p> <p>Ability to accept the patient, examination of the patient, preparation of the patient for the preparation of dental crowns.</p> <ol style="list-style-type: none"> 1. Ability to make the properly selection of the materials for tooth preparation, consider the importance of proper preparation 2. Ability to do the fully tooth preparation of all teeth in patients' mouth. 3. Ability to finish the artificial crown
4. Teaching methods	<p>Teaching is performed in the form of:</p> <ul style="list-style-type: none"> - lectures - hands-on - interactive Learning (IU) <p>Note: During hours of interactive learning, a written check is made continuously for the students in the purpose to follow-up theoretical teaching, practical teaching, and active discussion in the classroom.</p>
5. Knowledge assessment methods	<p>At the end of the course the student can acquire a total of 100 points.</p> <p>Within the total point score, the student can acquire a maximum of 50 points during each semester for attendance, activity and partial exam:</p> <ul style="list-style-type: none"> - lecture attendance - 2 points, - attendance and activity in practical exercises - 2 points

- partial exam - 46 points

The partial exam will be held in the 15th week in both semesters. Students sit the partial exam in the form of a test, which is compiled for each exam term, divided into A and B groups (if necessary, C and D groups). The partial exam is awarded points only if it has a score of at least 55% of correct answers. Each exam question need not be awarded the equal number of points.

The points that the student acquires in both semesters together make the final grade.

According to the above, the rating scale is as follows:

Grade	Number of points	Description of grade
10 (A)	95 - 100	outstanding success without error or with minor errors
9 (B)	85 – 94	above average, with some mistake
8 (C)	75 – 84	average, with noticeable errors
7 (D)	65 – 74	generally good, but with significant disadvantages
6 (E)	55 – 64	satisfies the minimum criteria
5 (F)	< 55	does not satisfy the minimum criteria

The final exam will be held in the 17-18 th week at the end of the course for students who have not passed the first and/or the second partial exam.

The remedial exam will be held in the 19-20 th week at the end of the course for students who have not passed the first and/or the second partial exam.

In addition, remedial exams are also held in September.

6. Literature:

1. Fundamentals of fixed prosthetics: Herbert T. Shillingburg, Jr, Sumiya Hobo, Lowell D: Whitsett, Richard Jacobi, Susan E. Brackett. Quintessence books 1997
2. Rosenstiel SF, Land MF, Fujimoto J. Contemporary Fixed Prosthodontics. St. Louis: Mosby, 1988:130.
 - Expanded
 - All textbooks from a fixed clinical prosthetics, in all languages - Internet

Semester: X
FIXED PROSTHODONTICS

1. Aim of the course	Enable students to work on patients in the field of fixed prosthodontics.
2. Purpose of the course	To train a student how to work on the patient; to correctly prepare the tooth for prosthodontics work, for the type of preparation, selection of the dental diamond burs for the correct, indicated preparation, to correctly prepare the dental surfaces and design the preparation line, to take the quality impression of the working and antagonistic surface, to try in fixed prosthetic works.

<p>3.Learning outcomes</p>	<p>The student will acquire the following knowledge through the Fixed Prosthodontics course. It will master the theoretical and professional with following: usage of the equipment in the dental office, the overall procedure for preparing teeth for the preparation and manufacturing of fixed prosthodontics work, preparation, impression, try in, cementing. The skills that a student needs to know on his own (knows how to and does) Examine the patient Prepare a patient for the dental crown procedure 1. Know how to handle equipment 2. Select the appropriate preparation burr 3. Prepare tooth for prosthetic ili prosthodontics work on his own 4. Take the appropriate impression of the prepared teeth on his own 5. To probe a fixed prosthetic ili prosthodontics work step by step 6. Correct fixed prosthetic ili prosthodontics work, temporarily and permanently on his own 7. Give instructions to the patient about the use of fixed prosthetic ili prosthodontics work After finishing the course, the student should adopt following attitudes: Full consideration of the importance of proper dental work in the patient in order to create an effective prosthodontics work in patient. Patient acceptance, patient examination, patient preparation for dental bridges. 1. The ability to properly select the resources of tooth preparation, complete understanding of the importance of proper preparation. 2. Capability for full preparation of all teeth in the mouth. 3. Capability for finishing the artificial bridge.</p>
<p>4.Learning methods</p>	<p>Teaching takes place in the form of: - lectures (P) for all students - practical training - group exercises according to the standard - interactive learning (IU) Note: During classes of interactive learning, a written check of students' readiness for the theoretical teaching, practical instruction and active attitude in the discussion is continuously conducted.</p>

5.Evaluation methods	<p>At the end of the course the student can acquire a total of 100 points. Within the total point score, the student can acquire a maximum of 50 points during each semester for attendance, activity and partial exam:</p> <ul style="list-style-type: none"> - lecture attendance - 2 points, - attendance and activity in practical exercises - 2 points - partial exam - 46 points <p>The partial exam will be held in the 15th week in both semesters. Students sit the partial exam in the form of a test, which is compiled for each exam term, divided into A and B groups (if necessary, C and D groups). The partial exam is awarded points only if it has a score of at least 55% of correct answers. Each exam question need not be awarded the equal number of points. The points that the student acquires in both semesters together make the final grade.</p> <p>According to the above, the rating scale is as follows:</p> <table border="1" data-bbox="555 891 1385 1518"> <thead> <tr> <th>Grade</th> <th>Number of points</th> <th>Description of grade</th> </tr> </thead> <tbody> <tr> <td>10 (A)</td> <td>95 - 100</td> <td>outstanding success without error or with minor errors</td> </tr> <tr> <td>9 (B)</td> <td>85 – 94</td> <td>above average, with some mistake</td> </tr> <tr> <td>8 (C)</td> <td>75 – 84</td> <td>average, with noticeable errors</td> </tr> <tr> <td>7 (D)</td> <td>65 – 74</td> <td>generally good, but with significant disadvantages</td> </tr> <tr> <td>6 (E)</td> <td>55 – 64</td> <td>satisfies the minimum criteria</td> </tr> <tr> <td>5 (F)</td> <td>< 55</td> <td>does not satisfy the minimum criteria</td> </tr> </tbody> </table> <ul style="list-style-type: none"> • The final exam will be held in the 17-18 th week at the end of the course for students who have not passed the first and/or the second partial exam. 	Grade	Number of points	Description of grade	10 (A)	95 - 100	outstanding success without error or with minor errors	9 (B)	85 – 94	above average, with some mistake	8 (C)	75 – 84	average, with noticeable errors	7 (D)	65 – 74	generally good, but with significant disadvantages	6 (E)	55 – 64	satisfies the minimum criteria	5 (F)	< 55	does not satisfy the minimum criteria
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6.Literature:

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- Expanded
 - All textbooks from a fixed clinical prosthetics, in all languages - Internet

Week	FIXED PROSTHODONTICS - IX semester Form of teaching	Number of hours
Week 1.	Lecture : Diagnosis, pre-prosthodontics preparing and therapy plan Anamnesis, clinical examination Models for studies Surgical, periodontal, conservative and orthodontic preparing in the preparation of fixed prosthodontics replacements	2
	Hands-on: Introductory class Working on the phantom Demonstration, anterior sectorpreparation Students do the preparation of teeth on the phantom in anterior sector	5
Week 2.	Lecture: Indications and contraindications for crown making(absolute and relative)	2
	Hands-on: Student work on the phantome Demonstration of tooth preparationtranscanine sectorteeth Taking the impression of prepared teeth on phanton: Demonstration Independent work	5
	Lecture: Elementary principles of tooth preparation for a dental crown	2

Week3.	<p>Hands-on: Anamnesis Status (ekstraoral,intraoral) Send the patient on X-ray Students do the preparation of teeth on the phantom in anterior-posterior sector Practice number one, for students that start to work with the patient</p>	5
Week4.	<p>Lecture: Finish line,design and position</p> <p>Hands-on: Student take the impression Student do the tooth preparation</p>	2 5
Week5.	<p>Lecture: Reactive changes on pulp and protection on the prepared tooth Mechanical and chemical means of protection The role and methods of making temporary fixed restorations Cementation of temporary fixed restorations.</p> <p>Hands-on: Student : Metal try-in evaluation stage, or evaluatin sequence of all- ceramic restoration Student take the impression Student do the tooth preparation</p>	2 5
Week6.	<p>Lecture: Preparing the region of gingival sulcus before taking the impression Opening methods of the region of gingival sulcus</p> <p>Hands-on: Studentry-in the finished restoration - towards gingiva, in proximal contact, occlusal- incisal - occlusal check - reocclusion - cementation Metal evaluation stage of metal-ceramic restoration or evaluation sequence of all- ceramic restoration Students do the tooth preparation Restorationtry-in(complete cast crown,partial-coverage restoration andmetal-ceramic restoration) Metal evaluation stage,evaluation sequence of restoration</p>	2 5
Week7.	<p>Lecture: Impression procedure in fixed prosthodontics- clinical aspect. Impression technique. Evaluation of the impression.Impression failures.</p>	2

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	<p>Hands-on:</p> <p>Student try-in the finished dental restorations</p> <ul style="list-style-type: none"> - towards gingiva, in proximal contact, occlusal-incisal - occlusal check - reocclusion - cementation <p>Metal evaluation stage of metal-ceramic restoration or evaluation sequence of all- ceramic restoration</p> <p>Students do the tooth preparation</p>	5
Week8.	<p>Lecture:</p> <p>Restoration try-in (complete cast crown, partial-coverage restoration and metal-ceramic restoration)</p> <p>Metal evaluation stage, evaluation sequence of restoration</p> <p>Hands-on:</p> <p>Tooth preparation</p> <p>Student try in the restoration</p> <p>Student cement the restoration</p>	2 5
Week9.	<p>Lecture:</p> <p>Cementation of restorations- types of cement for permanent cementation</p> <p>Procedure of classical and adhesive cementation</p> <p>Hands-on:</p> <p>Student take the impressions</p> <p>Student try-in the restoration, evaluation sequence</p> <p>Students choose the shade</p> <p>Student try-in finished restoration</p> <p>Student do the cementation of finished restoration</p>	2 5

Week14.	Lecture: Aesthetic restoration with metal core -Restorations with a bonded polimer (definition, indications, contraindications, advantages and disadvantages) -Metal-ceramic restoration(definition, indications, contraindications, advantages and disadvantages)	2
	Hands-on: Student try-in finished restoration Student do the cementation of restoration	5
Week15.	Lecture: Aesthetic restoration with no metal core (definition, indications, contraindications,advantages and disadvantages) Types od aesthetic restorations	2
	Hands-on: Student try- in finished restoration Student do the cementation of finished restoration	5

Week	FIXED PROSTHODONTICS - X semester Form of teaching and materials	Number of hours
Week 1.	Lecture: Bridges - basic concepts - Differential difference between fixed and mobile work - the psychological aesthetic meaning of the bridge	2
	Exercises: Patient reception for making a dental bridge - anamnesis Preparing a tooth for preparation Writing a working proposal for making a dental bridge	5

Week13.	<p>Lecture: Aesthetic veneers (indications, contraindications, planning and preparation, impression, color determination, try in and luting).</p> <p>Exercises: - examination of patients, anamnesis - preparation of teeth - protection of prepared teeth</p>	2 5
	<ul style="list-style-type: none"> - taking an impression - try in - luting 	
Week14.	<p>Lecture: Pathological abrasion of the teeth–diagnosis, treatment plan,determining the vertical dimension of occlusion, making definitive work Exercises:</p> <ul style="list-style-type: none"> - examination of patients, anamnesis - preparation of teeth - protection of prepared teeth - taking an impression - determining the vertical dimension of occlusion - try in of the bridge structure in metal - try in of a non-metallic bridge - try in of the aesthetic part on the bridge construction with metal - bridge cementing, temporary, permanent cement 	2 5
Week15.	<p>Lecture: Prosthetic therapy on dental implants</p> <p>Exercises:</p> <ul style="list-style-type: none"> - examination of patients, anamnesis - preparation of teeth - protection of prepared teeth - taking an impression - determining the vertical dimension of occlusion - try in of the bridge structure in metal - try in of a non-metallic bridge - try in of the aesthetic part on the bridge construction with metal - bridge cementing, temporary, permanent cement 	2 5
Weeks 17-18.	Final exam	

Weeks 19.-20.	Remedial exam	
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Code: SFS0146		Name of the course subject: BASICS OF PERIODONTOLOGY	
Level: Undergraduate	Year: 5	Semester: X	ECTS credits: 3,5
Status: Compulsory			Total hours: 45
Faculty advisor:			
Requirements for taking the course: Requirements regulated by the Rule book on studying at the first cycle of studies at the University of Sarajevo			
1. Course objectives	The goal of the course is to teach students of the Faculty of Dental Medicine about acute and chronic conditions of the periodontium, the aims of periodontal therapy, and the significance of initial therapy. It is especially important to teach the students about the pulpoperiodontal complications, as well as the treatment and preparation of medically compromised high-risk patients.		
2. Purpose of the course	The purpose of the course is to use theoretical and practical lessons to present and methodologically incorporate modern scientific and clinical discoveries about immunopathogenesis, classification, prevention, diagnostics, differential diagnostics and therapy of periodontal diseases. To teach students about the goals of periodontal therapy, and the significance of initial therapy and subgingival curettage, as well as periodontal treatment of patients with systemic diseases and therapy that requires a multidisciplinary approach.		
3. Learning outcomes	<p>By attending the course subject "Basics of Periodontology" students will adopt the following skills and knowledge:</p> <p>Module 1- Acute states in periodontology. The aim of the module is to introduce a student with a clinical picture, etiology, diagnosis, differential diagnosis and therapy of acute states of the periodontium (gingivitis, periodontal abscess, pericoronitis). To teach the students about the significance of doctrinaire therapy approach to acute conditions and possible complications with vital organs.</p> <p>Module 2- Chronic states in periodontology. The aim of the module is to introduce the students to the clinical picture, etiology, diagnostic procedure and therapy of chronic gingivitis, periodontitis, and recessions. To present complications of periodontal diseases, pulpoperiodontal complex, differential-diagnostic procedures and therapy protocol with these states.</p> <p>Module 3- The goals of periodontal therapy and initial therapy. To introduce the students with the goals of periodontal therapy and teach them about the significance of all segments of initial therapy (patient's motivation, the significance of oral hygiene, plaque control, elimination of local etiological factors and physiotherapy). Module 4- Treatment of high-risk patients. The aim of the module is to introduce the students with</p>		

	<p>periodontal treatments of high-risk patients, and the significance of the influence of systemic diseases on the occurrence and development of periodontal diseases. High-risk patients require doctrinaire approaches to towards periodontal treatments with multidisciplinary collaboration.</p> <p>Module 5- Subgingival curettage. The aim of the module is to present the students with indications, instruments, and methods of performing subgingival curettage, as well as significant methods in treating periodontitis and preparation for periodontal surgery.</p> <p>After attending the course students should be able to adopt the following standpoints:</p> <ol style="list-style-type: none"> 1. they should be able to acquire considerable comprehension of a clinical picture, differential diagnosis and therapy protocol for acute and chronic states of the periodontium; 2. they should be able to practically apply initial therapy and subgingival curettage; 3. have considerable comprehension of periodontal treatment of high-risk patients due to the possible complications of vital organs.
4. Teaching methods	<p>The course is held:</p> <ol style="list-style-type: none"> 1. lecture ex -cathedra for all the students 2. clinical exercises (practice)
5. Methods of learning assessment	<p>One of the forms of activity is the lecture and practical exercises attendance. The assessment of theoretical knowledge from the completed semester will be conducted in the written form – by means of a test. Points can be acquired in the following way:</p> <ul style="list-style-type: none"> - regular lecture attendance – 5 points, - regular practice attendance – 5 points, - practical exam – 10 points, - oral learning assessment – 35 points. <p>In this semester a student can acquire a maximum of 55 points.</p> <p>The points that a student acquires in this semester are added to the points that the student has acquired in semester IX and together they make up a final grade.</p> <p>The final exam consists of practical learning assessment performed on a patient and oral theoretical knowledge assessment of the completed tenth semester.</p> <p>The test grade at the end of semester IX goes into the final grade.</p> <p>If a student does not pass a mid-term exam, they take the curriculum matter from semesters IX and X together with the oral assessment.</p>
6. Literature:	<p>Obligatory:</p> <ol style="list-style-type: none"> 1. Lindhe J.Karring T.,Lang N.CLINICAL PERIODONTOLOGY AND IMAPLANT DENTISTRY. Fourth eidtion. Blackell Munksgard, 2003. 2. Wolf H.; Edith M. Rateitschak E.M.; Rateitschak H.K.PERIODONTOLOGY. Third edition.Thieme.2005. 3. Additional references : Lectures

	Supplementary: 1. Zuhr, O. Plastic, Esthetic, Periodontal, and Implant Surgery. Hurzeler. Quintessence, 2012.
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A DETAILED PLAN OF THE SYLLABUS:

Week	A form of teaching and curriculum	Number of hours
Week 1	Lecture: Acute states in Periodontology	1
	Practice: Individual work with a patient	2
	Seminars:	
Week 2	Lecture: Acute states in Periodontology	1
	Practice: Individual work with a patient	2
	Seminars:	
Week 3	Lecture: Chronic states in Periodontology	1
	Practice: Individual work with a patient	2
	Seminars:	
Week 4	Lecture: Chronic states in Periodontology	1
	Practice: Individual work with a patient	2
	Seminars:	
Week 5	Lecture: Chronic states in Periodontology	1
	Practice: Individual work with a patient	2
	Seminars:	
Week 6	Lecture: Chronic states in Periodontology	1
	Practice: Individual work with a patient	2

	Seminars:	
Week 7	Lecture: Recessions	1
	Practice: Individual work with a patient	2
	Seminars:	
Week 8	Lecture: Complications of periodontal diseases	1
	Practice: Individual work with a patient	2
	Seminars:	

Week 9	Lecture: Goals of periodontal therapy	1
	Practice: Individual work with a patient	2
	Seminars:	
Week 10	Lecture: Initial therapy	1
	Practice: Individual work with a patient	2
	Seminars:	
Week 11	Lecture: Initial therapy	1
	Practice: Individual work with a patient	2
	Seminars:	
Week 12	Lecture: Initial therapy	1
	Practice: Individual work with a patient	2
	Seminars:	
Week 13	Lecture: Treatment of high-risk patients	1
	Practice: Individual work with a patient	2
	Seminars:	
Week 14	Lecture: Subgingival curettage	1

	Practice: Individual work with a patient Seminars:	2
Week 15	Lecture: Summary of acute and chronic states of the periodontium Practice: Individual work with a patient Seminars:	1 2
Week 17	Final exam (practical and writing learning assessment)	
Week 18-20	Makeup exam date for students who have not passed the final exam.	

Code SFSOS0905E		COURSE TITLE: ENDODONTICS	
Level: undergraduate	Year: V	Semester IX and X	Total ECTS credits:9
Status: obligatory			Total classes: 120
Course leader		Head of the department	
Endodontics - Semester IX Course description			
1.Objectives of the course		Through 15 hours of lectures students are given fundamentals knowledge in: <ul style="list-style-type: none"> • morphology of dental pulp and periapical tissues • diagnostic protocol • etiology, pathogenesis and clinical classification of pulpal and periapical disease, • endodontic emergencies, • local anesthesia and analgesia in endodontics. 	
2.Purpose of the course		Students will acquire basic knowledge about etiology and treatment of pulp and periradicular diseases.	
3.Learning outcomes		Student are improving: <ul style="list-style-type: none"> -history taking and treatment planning, -interpretation of intraoral x-ray images, -local anesthesia of particular tooth, -preservation of dental pulp vitality (direct and indirect pulp capping) , -access openings of all teeth. 	
4.Learning methods		Lectures Special clinical practicals	
5.Criteria for taking the course exam		Passed exam in Preclinical endodontics	

6.Knowledge assessment methods	During the semester students have a short written knowledge check. At the end of the IX semester the students take a written partial exam. The final exam is taken at the end of the X semester in the written form.
7.Literature	Required: -Walton RE, Torabinejad M, Fouad A. Endodontics: principles and practice. Elsevier Saunders ,St. Louis, 2015. Recommended: -Ingle JI, Bakland LK. Endodontics. People's Medical Publishing House-USA, 2016. -Cohen S, Burns RC. Pathways of the pulp. Mosby Inc, St. Louis, 2019. -Bergenholtz G, Hørsted-Bindslev P, Reit C. Textbook of Endodontology. John Wiley and Sons, USA, 2010.
Rules of grading	See below

Endodontics - Semester X Course description	
1.Objectives of the course	Through 15 hours of lectures students are given fundamental and new theoretical knowledge in root canal preparation, medication and irrigation as well as restoration of endodontically treated teeth, complications during the endodontic therapy, therapy outcome evaluation and emergencies in endodontics.
2.Purpose of the course	The purpose of the clinical work is to train students for independent work with patients which implies intensive clinical work and adaptation of advanced theoretical and practical knowledge in the area of endodontics.
3.Learning outcomes	Student are improving: <ul style="list-style-type: none"> • instrumentation of the root canal, • irrigation and medication of the root canal, • obturation techniques, • restoration of endodontically treated tooth.
4.Learning methods	Lectures Special clinical practicals
5.Criteria for taking the course exam	Passed exam in Preclinical endodontics

<p style="text-align: right;">assessment</p> <p>6.Knowledge methods</p>	<p>Students take a practical and written part of the exam.</p> <p>Practical part of the exam:</p> <ol style="list-style-type: none"> 1. student has to take the medical history and perform a clinical examination (x-ray if needed), 2. make the diagnosis (state the differential diagnosis) and 3. make the treatment plan. <p>After the examiner approves the treatment plan, the student performs the procedure. After the procedure, the examiner grades the student’s practical work and enters the grade into the booklet of attendance.</p> <p>Written part of the exam: At the exam, the student draws papers containing questions. Students answer the question by marking the offered answers. If the student gives positive answers to 76% of questions or more, the written part of the exam is considered a pass.</p>
<p>7.Literature</p>	<p>Required literature:</p> <ol style="list-style-type: none"> 1.Walton RE, Torabinejad M, Fouad A. Endodontics: principles and practice. Elsevier Saunders ,St. Louis, 2015. <p>Recommended literature:</p> <ol style="list-style-type: none"> 1.Ingle JI, Bakland LK. Endodontics. People's Medical Publishing House-USA, 2016.
	<ol style="list-style-type: none"> 2.Cohen S, Burns RC. Pathways of the pulp. Mosby Inc, St. Louis, 2019. 3.Bergenholtz G, Hørsted-Bindslev P, Reit C. Textbook of Endodontology. John Wiley and Sons, USA, 2010.
<p>8.Rules of grading</p>	<p>The final grade is formed on the basis of the following factors:</p> <ul style="list-style-type: none"> - attendance at the lecture - maximum 10 points - attendance at practicals - maximum 10 points -short written test of knowledge- maximum 10 points (maximum 5 points per work) - partial exam - maximum 25 points - Practical part of the exam - maximum 20 points - final exam- maximum 25 points <p>10 (A) -95-100 points; 9 (B) - 85-94 points; 8 (C) - 75-84 points; 7 (D) - 65-74 points; 6 (E) - 55-64 points; 5 (F, FX) – not satisfied, less than 55 points.</p>

Week	Endodontics IX semester	Course load
Week 1.	Lecture: The biology of dental pulp and periradicular tissues Clinical practicals: Introduction to endodontic diagnostic protocol, seminar paper assignment	1 3
Week 2.	Lecture: Root canal morphology Clinical practicals: Endodontic treatment of maxillary and mandibular teeth	1 3
Week 3.	Lecture: Endodontic diagnostic protocol Clinical practicals: Endodontic treatment of maxillary and mandibular teeth	1 3
Week 4.	Lecture: Endodontic radiography Clinical practicals: Endodontic treatment of maxillary and mandibular teeth	1 3
Week 5.	Lecture: Etiology, pathogenesis and classification of pulpal disease Clinical practicals: Endodontic treatment of maxillary and mandibular teeth	1 3
Week 6.	Lecture: Pulp necrosis and microbiology of endodontic infections Clinical practicals: Endodontic treatment of maxillary and mandibular teeth	1 3
Week 7.	Lecture: Etiology, pathogenesis and classification of periradicular disease Clinical practicals: Endodontic treatment of maxillary and mandibular teeth	1 3
Week 8.	Lecture: Endodontic and periodontal interrelationship Clinical practicals: Endodontic treatment of maxillary and mandibular teeth	1 3
Week 9.	Lecture: Endodontic treatment ofumatic injuries Clinical practicals: Endodontic dental of maxillary and mandibular teeth treatment	1 3
Week 10.	Lecture: Geriatric endodontics Clinical practicals: Endodontic treatment of maxillary and mandibular teeth	1 3
Week 11.	Lecture: Pain control Clinical practicals: Endodontic treatment of maxillary and mandibular teeth	1 3
Week 12.	Lecture: Interactive recapitulation Clinical practicals: Endodontic treatment of maxillary and mandibular teeth	1 3
Week 13.	Lecture: Interactive recapitulation Clinical practicals: Endodontic treatment of maxillary and mandibular teeth	1 3

Week 14.	Lecture: Interactive recapitulation Clinical practicals: Endodontic treatment of maxillary and mandibular teeth	1 3
Week 15.	Lecture: Interactive recapitulation Clinical practicals: Endodontic treatment of maxillary and mandibular teeth	1 3
Week 17.	Partial exam	1

Week	Endodontics X semester	Course load
Week 1.	Lecture: Cleaning and shaping of root canal system using hand instruments Clinical practicals: Endodontic treatment of maxillary and mandibular teeth	1 3
Week 2.	Lecture: Properties of endodontic rotary files, rotary techniques of root canal preparation Clinical practicals: Endodontic treatment of maxillary and mandibular teeth	1 3
Week 3.	Lecture: Root canal irrigation, properties and application protocol of root canal irrigants Clinical practicals: Endodontic treatment of maxillary and mandibular teeth	1 3
Week 4.	Lecture: Intracanal medication, properties and application protocol of intracanal medicaments Clinical practicals: Endodontic treatment of maxillary and mandibular teeth	1 3
Week 5.	Lecture: Obturating materials Clinical practicals: Endodontic treatment of maxillary and mandibular teeth	1 3
Week 6.	Lecture: Techniques of root canal obturation Clinical practicals: Endodontic treatment of maxillary and mandibular teeth	1 3
Week 7.	Lecture: Single versus multiple visits root canal treatment Clinical practicals: Endodontic treatment of maxillary and mandibular teeth	1 3
Week 8.	Lecture: Restoration of endodontically treated teeth Clinical practicals: Endodontic treatment of maxillary and mandibular teeth	1 3
Week 9.	Lecture: Complications and errors during the endodontic treatment Clinical practicals: Endodontic treatment of maxillary and mandibular teeth	1 3

Week 10.	Lecture: Outcome evaluation of the endodontic treatment Clinical practicals: Endodontic treatment of maxillary and mandibular teeth	1 3
Week 11.	Lecture: Nonsurgical retreatment Clinical practicals: Endodontic treatment of maxillary and mandibular teeth	1 3
Week 12.	Lecture: Endodontic surgery Clinical practicals: Endodontic treatment of maxillary and mandibular teeth	1 3
Week 13.	Lecture: Emergencies in endodontics Clinical practicals: Endodontic treatment of maxillary and mandibular teeth	1 3
Week 14.	Lecture: Interactive recapitulation Clinical practicals: Endodontic treatment of maxillary and mandibular teeth	1 3
Week 15.	Lecture: Interactive recapitulation Clinical practicals: Endodontic treatment of maxillary and mandibular teeth	1 3
Week 17.	Final exam	
Week 18.-20.	Remedial	

FIFTH YEAR ELECTIVE COURSES

Code: SFSIS1001E		Course title: DENTAL TRAUMA IN CHILDREN	
Level: Undergraduate	Year: V	Semester: X	ECTS credits: 5
Status: Elective			Total classes: 45
Professor in charge:	Head of the Department		
Enrollment requirements: Are regulated by the rules for enrollment in the University of Sarajevo bachelor degree programs			
1.Objectives	On successful completion of theoretical lectures and case studies provided in this module, students should be fully acquainted with diagnostic procedures and treatment modalities for acute traumatic injuries of primary and permanent teeth in		

2.Purpose	<p>children and adolescents.</p> <p>On successful completion of this module students will be able to diagnose acute dental and facial trauma, determine options for treatment by general dentist and identify and refer complex cases to dental specialist.</p> <p>Students will be able to brief patients and their parents with treatment plan, possible impact of trauma on the future development of orofacial system and establish the timeline for follow up control visits. Students will also be able to educate patients and their parents on prevention of dental and facial trauma.</p>
3.Learning outcomes	<p>On successful completion of this models, students will be able to:</p> <p>Identify predisposing factors for traumatic dental and facial injuries</p> <p>Implement an appropriate diagnostic procedure, including an anamnesis, clinical and radiological examination</p> <p>Develop an appropriate treatment plan for dental trauma in children primary and permanent dentition</p> <p>Set up a schedule for follow up examinations that will guaranty the long-term success of the provided treatment</p>
4. Teaching methods	<p>Counsel patients and their parents on prevention of dental and facial trauma.</p> <p>Module includes:</p> <p>ex cathedra lectures for all participating students;</p> <p>standardized practical, hands-on training for groups of students</p> <p>interactive learning and PBL model for all participating students (within ex cathedra lectures and practical training)</p>
5.Methods of assessment / student evaluation	<p>After taking part in all lectures and hands-on training activities and upon completing the final exam, students can earn a maximum of 100 points</p> <p>The final course grade will include the following:</p> <p>Points earned for student activity in practical training sessions. Students can earn a maximum of 30 points. Student activity will be observed and assessed continuously on individual basis. Specific components are assessed separately in</p>
6. Literature:	<p>Mandatory reading materials:</p> <ul style="list-style-type: none"> Andreasen JO, Bakland LK, Flores MT, Andreasen FM, Andreasen L. Traumatic dental injuries: A manual 3rd edition. Wiley-Blackwell, 2011. <p>Supplementary reading materials:</p> <ul style="list-style-type: none"> Cameron A, Widmer R. Handbook of Paediatric Dentistry, 3rd Edition, Mosby, 2008.

Week	Content and teaching methods	Number of hours
Week 1	Lectures: Epidemiology and etiology of traumatic dental injuries in children and adolescents, predisposing factors.	1

	Hands-on training: Presentation of clinical cases, diagnosis based on clinical documentation, treatment plan.	2
Week 2	Lectures: Classification of dental injuries and consequences of dental trauma. Hands-on training: Presentation of clinical cases, diagnosis based on clinical documentation, treatment plan.	1 2
Week 3	Lectures: Examination and diagnosis of dental injuries, treatment plan. Hands-on training: Presentation of clinical cases, diagnosis based on clinical documentation, treatment plan.	1 2
Week 4	Lectures: Prevention of dental injuries Hands-on training: Presentation of clinical cases, diagnosis based on clinical documentation, treatment plan.	1 2
Week 5	Lectures: Treatment priorities after dental trauma. Hands-on training: Presentation of clinical cases, diagnosis based on clinical documentation, treatment plan.	1 2
Week 6	Lectures: Injuries to the primary dentition. Hands-on training: Presentation of clinical cases, diagnosis based on clinical documentation, treatment plan.	1 2
Week 7	Lectures: Consequences of dental trauma in primary dentition Hands-on training: Presentation of clinical cases, diagnosis based on clinical documentation, treatment plan.	1 2
Week 8	Lectures: Dental trauma in permanent and young permanent dentition: crown fractures without and with pulp exposure. Hands-on training: Presentation of clinical cases, diagnosis based on clinical documentation, treatment plan.	1 2
Week 9	Lectures: Dental trauma in permanent and young permanent dentition: root fractures and crown-root fractures. Hands-on training: Presentation of clinical cases, diagnosis based on clinical documentation, treatment plan.	1 2
Week 10	Lectures: Dental trauma in permanent and young permanent dentition: luxation injuries. Hands-on training: Presentation of clinical cases, diagnosis based on clinical documentation, treatment plan.	1 2
Week 11	Lectures: Fractured crown reconstruction Hands-on training: Presentation of clinical cases, diagnosis based on clinical documentation, treatment plan.	1 2
Week 12	Lectures: Endodontic considerations in dental trauma. Hands-on training: Partial exam	1 2

Week 13	Lectures: Surgical considerations in dental trauma. Hands-on training: Prevention of traumatic dental injuries: Information for the public and for the patients about dental trauma.	1 2
Week 14	Lectures: Orthodontic considerations in dental trauma. Medico-legal aspect of dental trauma. Hands-on training: Prevention of traumatic dental injuries: Information for the public and for the patients about dental trauma.	11 2
Week 15	Lectures: Diagnosis of pulpal and periodontal healing complications after traumatic dental injuries. Hands-on training: Prevention of traumatic dental injuries: Information for the public and for the patients about dental trauma.	1 2
Week 17-18	Final exam	
Week 19-20	Remedial exam	

CODE: SFSIS0906E	COURSE TITLE: ORAL HEALTHCARE FOR DISABLED PERSONS		
LEVEL: UNDERGRADUATE	Year: V	Semester: IX	ECTS credits: 7
STATUS: ELECTORAL			TOTAL classes: 60 (L30 + P30)
Professor in charge:	Head of the Department		
Requirements for taking the course: Requirements regulated by the Rule book on studying at the first cycle of studies at the University of Sarajevo.			
7. Course objectives	After completion of classes and exams, the student should be able to recognize and provide dental protection for disabled persons.		
8. Purpose of the course	Health care and oral healthcare insurance for disabled persons. Dental protection for disabled persons.		
9. Learning outcomes	Oral healthcare for disabled persons and diagnostic protocol (first examination, diagnosis, therapy, premedication).		
10. Teaching methods	Interactive lectures, continuous assessment of knowledge.		

11. Methods of learning assessment	<p>During the lectures – oral exam. At the end of the course – written exam.</p> <p>The student can achieve a maximum of 100 points by fulfilling pre-examination obligations and passing the exams. The final grade will be formed on the following elements:</p> <ul style="list-style-type: none"> -Mandatory presence - 30 points. -The final mandatory exam which will consist of a theoretical part in the form of a written test - 70 points. <p>GRADING SCHEMA:</p> <p>A (10) = 95 – 100 B (9) = 85 - 94 C (8) = 75 - 84 D (7) = 65 - 74 E (6) = 55 – 64* F</p> <p>Student that score 55-69% can take additional exam. Students that score below 55% have to take the course again.</p>
12. Literature:	<p>MANDATORY:</p> <ol style="list-style-type: none"> 1.Neville BW, Damm DD, Allen CM, Bouquot JE. Oral and maxillofacial pathology. 3rd edition . Saunders Elsevier 2009 2. Zukanović A, Gržić R. Stomatološko liječenje medicinski kompromitiranih pacijenata. Hrvatska Komora dentalne medicine, 2012. 3.Lazarevski P, Škrinjarić I, Vranić A. Psihologija za stomatologe. Naklada Slap, 2005.

NO	CONTENT -LECTURES	HOURS
Week 1	Basic concepts and definitions oral healthcare for disabled persons (physical disability, impairment of vision, hearing, multiple damages, autism, mental retardation, chronic diseases-muscular dystrophy, myasthenia gravis, cerebral paralysis) and their social security.	2
Week 2	Autism and mental retardation. Clinical manifestations of the most common mental retardation syndromes (Down's, Treacher Collins, Crouzon syndrome, Gorlin-Goltz syndrome).	2
Week 3	Health care and oral healthcare insurance for disabled persons. Dental protection for disabled persons.	2
Week 4	Oral healthcare for disabled persons and diagnostic protocol (first examination, diagnosis, therapy, premedication).	2
Week 5	Children and preventive dentistry for disabled persons.	2
Week 6	Oral health and protection of the oral cavity for disabled persons.	2
Week 7	Conservative treatment of teeth, treatment and restoration of hard dental tissues of the oral cavity for disabled persons.	2
Week 8	Aspects of premedication and oral surgical intervention for disabled persons in local anesthesia.	2
Week 9	Aspects of premedication and oral surgical intervention for disabled persons in general anesthesia.	2
Week 10	Orthodontic treatment for disabled persons.	2
Week 11	Prosthetic rehabilitation for disabled persons.	2

Week 12	Oral health and dental protection for disabled persons suffering from myasthenia gravis and muscular dystrophy.	2
Week 13	Oral health and dental protection for disabled persons suffering from cerebral paralysis.	2
Week 14	Oral health and dental protection for disabled persons suffering from Parkinson's disease.	2
Week 15	Oral health and dental protection for disabled persons suffering from Alzheimer's disease.	2

NO	CONTENT - PRACTICALS	HOURS
Week 1	Basic concepts and definitions for oral healthcare for disabled persons. Diagnostic protocol, (anamnesis and dental examination). Complications during the providing of services for disabled persons.	2
Week 2	Diagnostic protocol and the providing of dental services to visually impaired people (first examination, diagnosis and dental treatment plan) .	2
Week 3	Diagnostic protocol and the providing of dental services to visually impaired and disabled persons and to persons with disabilities without diagnosed mental retardation (conservative and endodontic therapy of hard dental tissues).	2
Week 4	Diagnostic protocol and the providing of dental services to visually impaired and disabled persons and to persons with disabilities without diagnosed mental retardation (conservative and endodontic therapy of hard dental tissues).	2
Week 5	Diagnostic protocol and the providing of dental services to visually impaired and disabled persons and to persons with disabilities without diagnosed mental retardation (conservative and endodontic therapy of hard dental tissues).	2
Week 6	Diagnostic protocol and the providing of dental services to visually impaired persons and persons with disabilities without diagnosed mental retardation (dental tartar cleaning).	2
Week 7	Diagnostic protocol and the providing of dental services to visually impaired persons and persons with disabilities without diagnosed mental retardation (dental tartar cleaning).	2
Week 8	Diagnostic protocol and the providing of dental services to visually impaired persons and persons with disabilities without diagnosed mental retardation (tooth extraction).	2
Week 9	Diagnostic protocol and the providing of dental services to visually impaired persons and persons with disabilities without diagnosed mental retardation (tooth extraction).	2
Week 10	Diagnostic protocol and the providing of dental services to visually impaired persons and persons with disabilities without diagnosed mental retardation (tooth extraction).	2
Week 11	Diagnostic protocol and providing dental services to children with disabilities without diagnosed mental retardation.	2
Week 12	Diagnostic protocol and providing dental services to children with disabilities without diagnosed mental retardation.	2
Week 13	Diagnostic protocol and providing dental services to children with disabilities without diagnosed mental retardation.	2
Week 14	Presence and assisting students in conducting oral surgical interventions for disabled persons in general anesthesia.	2
Week 15	Presence and assisting students in conducting oral surgical interventions for disabled persons in general anesthesia.	2
Week 17	Written learning assessment by means of a test.	

Week 18-20	Makeup exam date for students who have not passed the written exam.	
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Code: SFSIS0907E	COURSE TITLE: EPIDEMIOLOGY OF DISEASES OF THE PERIODONTIUM		
Level: Undergraduate	Year: V	Semester: IX	ECTS credits: 4
Status: Elective			Total classes: 45
Faculty advisor:	Head of the Department		
Requirements for taking the class: Requirements regulated by the Rule book on studying at the first cycle of studies at the University of Sarajevo			
1. Course objectives	The goal of the course is to teach students of the Faculty of Dental Medicine about the epidemiology of periodontal disease which studies and researches occurrences and distribution of the disease and physiological conditions within the population groups linked to lifestyle and ecological conditions in certain geographical areas. The epidemiology of periodontal disease researches: a percentage of individuals in the population groups that have a disease of the periodontium, to what extent the disease is manifested, and all other elements which are significant for its occurrence and development.		
2. Purpose of the course	The purpose of the course is to use theoretical and practical lessons to present and methodologically incorporate modern scientific and clinical discoveries about the significance of the factors of quantification which contribute to the occurrence and the development of periodontal diseases by means of three index groups. To train the students about the methods of index application in periodontology, means and periodontal instruments, as well as basic principles of initial periodontal therapy.		
3. Learning outcomes	By attending the course “Epidemiology of the diseases of periodontium” the students will be able to adopt the following skills and knowledge: Module 1- Epidemiology of periodontal disease. The aim of the module is to introduce the students with the significance of		

	<p>physiological condition of the periodontium and the quantification of the frequency of the changes in the periodontium, as well as the most common etiological factors that lead to periodontal diseases.</p> <p>Module 2 – Plaque indexes. The aim of the module is to introduce the students with the plaque indexes, their detection, and application in practice.</p> <p>Module 3 – Gingival indexes. The aim of the module is to introduce the students to the anatomically-morphological characteristics of the gingiva and the application of gingival indexes for the quantification of the gingival diseases.</p> <p>Module 4 – Periodontal indexes. The aim of the module is to introduce the students with pathological changes in the periodontium, periodontal pockets, and indexes for the quantification of periodontal diseases.</p> <p>Module 5 – The aims of periodontal therapy. The aim of the module is to introduce the students with the significance of the index changes in the assessment of the condition of the periodontium and the need for adequate periodontal therapy.</p> <p>After attending the course the students should be able to adopt the following standpoints:</p> <ol style="list-style-type: none"> 1. they should acquire considerable knowledge of the basic anatomically morphological characteristics of the periodontium 2. comprehend the indexes in periodontology and their application 3. adopt the knowledge about the significance of periodontal indexes for the assessment of required periodontal therapy.
4. Teaching methods	<p>The course is held:</p> <ol style="list-style-type: none"> 1. lecture ex-cathedra for all the students 2. clinical exercises (practice)
5. Methods of learning assessment	<p>One of the forms of activity is the lecture and practical exercise attendance. The assessment of theoretical knowledge from the completed semester will be conducted in the written form – by means of a test.</p> <p>The total grade consists of:</p> <ul style="list-style-type: none"> -regular lecture attendance - 5 points, -practice attendance – 5 points -active work in practice – 35 points, - in week 10, a colloquium from attended topics - 15 points, demonstration of the application of periodontal indexes, individual work with a patient – 20 points; -the final exam by means of a test – 55 points. <p>The assessment and grading of students’ knowledge will be conducted according to the following system:</p> <ol style="list-style-type: none"> a) 10 (A) - exceptional results without mistakes or with insignificant mistakes, a total of 95-100 points; b) 9 (B) - above average, with few mistakes, a total of 85-94 points;

	<p>c) 8 (C) - average, with noticeable mistakes, a total of 75-84 points;</p> <p>d) 7 (D) - generally good, but with significant shortcomings, a total of 65-74 points;</p> <p>e) 6 (E) - fulfills minimum criteria, a total of 55-64 points;</p> <p>f) 5 (F, FX) - does not fulfill minimum criteria, less than 55 points.</p>
6. Literature:	<p>Obligatory:</p> <p>1.Lindhe J.Karring T.,Lang N.CLINICAL PERIODONTOLOGY AND IMAPLANT DENTISTRY. Fourth eidtion. Blackell Munksgard, 2003.</p> <p>2.Wolf H.; Edith M. Rateitschak E.M.; Rateitschak H.K. PERIODONTOLOGY. Third edition.Thieme.2005.</p> <p>3.Additional references : Lectures Supplementary:</p> <p>1.Zuhr,O.Plastic, Esthetic, Periodontal, and Implant Surgery. Hurzeler. Quintessence, 2012</p> <p>2.Pašić E, Hadžić S, Gojkov Vulelić M and Hukić M: Oral microbiology, Faculty of Dental Medicine in Sarajevo, 2017.</p>

Week	Form of teaching	Number of hours
Week 1	Lecture: Epidemiology of periodontal diseases Practice: Basic principles of periodontal examination	2 1
Week 2	Lecture: Teeth plaque Practice: Basic principles of periodontal examination	2 1
Week 3	Lecture: Means and equipment for plaque detection Practice: Basic principles of periodontal examination	2 1
Week 4	Lecture: Plaque indexes Practice: Demonstration of the application of plaque indexes	2 1
Week 5	Lecture: Means and methods of maintaining oral hygiene Practice: Individual work	2 1
Week 6	Lecture: Anatomically-morphological characteristics of the gingiva Practice: Individual work	2 1
Week 7	Lecture: Gingival indexes Practice: Demonstration of the application of gingival indexes	2 1
Week 8	Lecture: Gingival indexes Practice: Individual work	2 1
Week 9	Lecture: Periodontal pockets Practice: Individual work	2 1
Week 10	Lecture: Periodontal pockets Student assessment by means of a colloquium	2 1
Week 11	Lecture: Periodontal indexes Practice: Individual work	2 1

Week 12	Lecture: Summary of indexes in periodontology Practice: Individual work	2 1
Week 13	Lecture: The aims of periodontal therapy Practice: Individual work	2 1
Week 14	Lecture: Basic principles of initial periodontal therapy Practice: Individual work	2 1
Week 15	Lecture: Basic principles of initial periodontal therapy Demonstration of the application of periodontal indexes – individual work with a patient	2 1
Week 17	Final exam (test)	
Week 18-20	Makeup exam date for students who have not passed the final exam.	

Code: SFSIS1002E	COURSE TITLE: PRE-SURGICAL ORTHODONTIC TREATMENT		
Level: Undergraduate	Year: V	Semester: X	ECTS credits: 6
Status: Elective	Weeks: 15		Total classes: 60 (L30 + P30)
Course head:	Head of the Department		
Requirements for the course:	Defined by the Law		
1. Aims of the course	The aim is to introduce contemporary multidisciplinary treatment of severe skeletal discrepancies of craniofacial region to the students		
2. Course content and Learning Objectives	The purpose of the course is to provide basic information to students about multidisciplinary treatment of orthodontic-surgical cases.		
3. Learning outcomes	<p>By the end of the course, the student will Acquire the knowledge in:</p> <ul style="list-style-type: none"> Problem list development Diagnostics procedures in orthognatic surgery patients Dentoskeletal disrepances (types, etiology,..) Radiographic procedures in pre-surgical orthodontics (2D, 3D) Pre-surgical orthodontics treatment in patients with severe dentoskeletal disrepances Pre-surgical orthodontics treatment in patients with tooth retention -impaction 		
4. Teaching and learning methods	Lectures, seminars, discussion.		

5. Assessment methodology	<p>Student knowledge is assessed during semesters. At the end of the course, there is the final exam.</p> <p>All scheduled written and oral exams during the semesters are mandatory.</p> <p>The final exam is written (essay).</p> <p>During semester continuing scoring will be done based on the PBL session, practical work. PBL essay with relevant reference list will be scored 0-25 points.</p> <p>Partial exam (Problem based learning - PBL) during 8 week. Maximal score 25 points.</p> <p>Active participation in PBL session discussion (based on evidence based dentistry) will be scored 0-10 points. Maximal score during semester is 50 points.</p>
	<p>Final exam</p> <p>Written exam (maximal score is 25 points).</p>

Scoring	Scale in points					
	0	1- 5	6 - 10	11-16	17-22	23- 25
Idea and logic of essay	Totally wrong theme Insufficiently elaborated topic	Very Low theme elaboration	Low theme elaboration	Good theme elaboration	Very good theme elaboration	Very good theme elaboration High level of elaboration and logic, multidisciplinary approach etc.
Essay structure	No structure	Very low essay structure	Low essay structure	Good essay structure	Very good essay structure	High level of essay structure
Clarity and style	Absence of complete sentences Poor and / or inaccurate choice of words Serious writing mistakes	Very few completed sentences	Some completed sentences	Some completed sentences Good or accurate choice of words	Clarity of text is present Good or accurate choice of words	High level of Clarity of text is present

Activity	Maximal points
Continuing evaluation during semester	75
Final exam	25

Total	100
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Final mark:

Points	Mark
0 - 54	5
55 - 64	6
65 – 74	7
75 – 84	8
85 – 94	9
95 – 100	10

6.Literature:

1. Proffit WR, Fields HW, Sarver DM. Contemporary orthodontics, 4th edition. St. Louis: Mosby; 2006. (or newer edition)
2. Athanasios EA. Orthodontic Cephalometry, 1 st edition. Mosby-Wolfe 1995.
3. White SC, Pharoah MJ. Oral Radiology: Principles and Interpretation, 7th edition, Elsevier; 2014.
4. E-learning content

Week	Teaching methodology :L (lectures), P (practice)	
Week 1.	L: Introduction (History of the orthognathic surgery) P: Presentation of Problem Based Learning (PBL) method to a student	2 2
Week 2.	L: Diagnostics procedures in orthodontic-surgery patients P: Rtg, LL, OPG	2 2
Week 3.	L: Tooth retention-impaction P: Rtg, OPG, CBCT, Problem based learning	2 2
Week 4.	L: Tooth retention-impaction P: Rtg, OPG, CBCT, Problem based learning	2 2

Week 5.	L: Third molars extraction in orthodontics P: Literature review based PBL	2 2
Week 6.	L: Mini implants in orthodontics P: Literature review based PBL	2 2
Week 7.	L: Mini plates in orthodontics P: Literature review based PBL	2 2
Week 8.	L: Orthognathic surgery P: Problem based learning, in office presentation of orthognathic surgical cases, analysis of diagnostics data	2 2
Week 9.	L: Presurgical orthodontics for orthognathic surgery of Class III malocclusion P: Problem based learning and in office presentation of the orthodontic treatment , analisys of diagnostics data	2 2
Week 10.	L: Pre-surgical orthodontics for orthognathic surgery of Class II malocclusion P: Problem based learning and in office presentation of the orthodontic treatment, analysis of diagnostics data	2 2
Week 11.	L: Pre-surgical orthodontics for orthognathic surgery of Class II malocclusion P: PBL and in office presentation of the orthodontic treatment , analysis of diagnostics data	2 2
Week 12.	L: Presurgical orthodontics for orthognathic surgery of transversal skeletal discrepancy P: PBL and in office presentation of the orthodontic treatment, analysis of diagnostics data	2 2
Week 13.	L: Craniosynostosis P: Literature review based PBL	2 2
Week 14.	L: Clasical (early) surgical treatment of CLP P: PBL and in office presentation of the orthodontic treatment, analysis of diagnostics data	2 2

Week 15.	L: Delayed surgical treatment of CLP P: PBL and in office presentation of the orthodontic treatment, analysis of diagnostics data	2 2
Week 17.	Final exam	
Weeks 18.-20.	Makeup exam and summer school (if necessary)	

Code: SFSIS0908E	Course title: CLINICAL GNATHOLOGY		
Level: Undergraduate	Year: V	Semester: IX	ECTS credits: 4
Status: Elective			Total classes: 45 (L15+P30)
Course leader:	Head of the Department		
Conditions for attending classes: condition are regulated by the rules of study for the Integrated study program of the first and second cycles in establishments of higher education at Sarajevo University.			
1.Objectives of the course:	The aim of the course is let the student master to the theoretical and practical knowledge of clinical gnathology.		
2.Purpose of the course:	The purpose of the course is to enable the student to perform the function analysis of orofacial complex and planning of occlusal therapy disorder, based on the basic principles of achievement and maintenance of occlusal harmony. Through lectures and practical teaching students adopt knowledge of modern standards of normal, functional, healthy and compensated stomatognathic system, and adopt understands the complex relationships between his components in during sleep and during the function, which are applicable to all dental procedures.		
3.Learning outcomes:	After attending classes and passing the exam, the student should: - master of motion and mandibular position analysis and methodology of occlusal relations in central and eccentric positions mandible during the functional analysis of the orofacial complex, - teach diagnostics and treatment options for temporomandibular dysfunction, - mastery methodology of reversible occlusal therapy, - master the basic principles of occlusal balancing by selective grinding, - master the principles of planning reconstructive intervention in accordance with valid occlusion concepts.		

4.Learning methods:	<p>Theoretical and practical</p> <ul style="list-style-type: none"> -practical exercises -written exercises 																					
5.Evaluation methods:	<p>Students are required to meet all the requirements prior to sitting the exam. The maximum score is 100 points. At this, 50% of points is awarded for a successful completion of pre-exam tasks while the final exam is awarded 50% of points.</p> <p>Acquired knowledge and skills are tested continually during the course.</p> <p>Within the total point score, 50% * of points is envisaged for activities and test during the semester: 40 % * of points for the mid-term test and</p>																					
	<p>10 % * of points for attendance and other activities (2 points for attendance at classes, 4 points for attendance at practical exercises and 4 points for activity in practical exercises). The final exam is awarded maximum 50% *of points.</p> <p>As a rule, the mid-term test is given in a written form and taken in the week 8. of the semester.</p> <p>The final exam is given in a test form which is compiled for each exam term. Students sit the exam divided into A and B groups (if necessary, into C and D groups).</p> <p>The final exam can be awarded points only if the student achieves at least 55% of correct answers in exam.</p> <p>In accordance with the above, the grade scale is as follows:</p> <table border="1" data-bbox="520 1234 1385 1709"> <thead> <tr> <th>Grade</th> <th>ECTS points</th> <th>Grade description</th> </tr> </thead> <tbody> <tr> <td>10 (A)</td> <td>95 - 100</td> <td>excellent without errors or with minor errors</td> </tr> <tr> <td>9 (B)</td> <td>85 – 94</td> <td>above average, with a few errors</td> </tr> <tr> <td>8 (C)</td> <td>75 – 84</td> <td>average, with noticeable errors</td> </tr> <tr> <td>7 (D)</td> <td>65 – 74</td> <td>generally good, but with significant flaws</td> </tr> <tr> <td>6 (E)</td> <td>55 – 64</td> <td>satisfies the minimal criteria</td> </tr> <tr> <td>5 (F)</td> <td>< 55</td> <td>does not satisfy the minimal criteria</td> </tr> </tbody> </table> <p>* % = points</p> <p>All the exam questions need not be awarded the equal number of points. Decision on point scoring is made by the course leader before the exam.</p>	Grade	ECTS points	Grade description	10 (A)	95 - 100	excellent without errors or with minor errors	9 (B)	85 – 94	above average, with a few errors	8 (C)	75 – 84	average, with noticeable errors	7 (D)	65 – 74	generally good, but with significant flaws	6 (E)	55 – 64	satisfies the minimal criteria	5 (F)	< 55	does not satisfy the minimal criteria
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5 (F)	< 55	does not satisfy the minimal criteria																				

6.Literature:	<p>Required literature :</p> <ol style="list-style-type: none"> Okeson PJ. Management of temporomandibular disorders and occlusion.6th Mosby,2006. Dawson PE. Functional Occlusion: From TMJ to Smile Design. St.Louis: Mosby; 2007.
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Week	Form of teaching - CLINICAL GNATHOLOGY	No.of hours
Week 1	<p>Lecture: Medical history and functional analysis of the orofacial complex: Medical history Examination of the head, face and jaw Examination of TMJ:</p> <ul style="list-style-type: none"> - Palpation - Auscultation - Functional tests - Radiographic evaluation of TMJ Examination of the orofacial muscles <p>Practical exercises: Medical history-assistant introductory Meet students with anamnestic card for orofacial pain and temporomandibular disorders Student work on a patient history -patient interview</p>	1
	<p>Practical exercises: Student work on a patient history -patient interview</p>	2
Week 2	<p>Lecture: Evaluation of occlusion complex status: Clinical and radiographic evaluation of the health status of the remaining teeth Atypical tooth wear-abrasion, erosion, attrition Examination of the periodontal status Tooth position analysis Analysis of the position and continuity of the occlusal plane</p> <p>Practical exercises: Student work-functional analysis of the orofacial complex Demonstration and student work on a patient history Evaluation of the status of the occlusion complex -dental status, periodontal status, tooth abrasion.</p>	1
	<p>Practical exercises: Student work-functional analysis of the orofacial complex Demonstration and student work on a patient history Evaluation of the status of the occlusion complex -dental status, periodontal status, tooth abrasion.</p>	2

2.Purpose of the course:	Obtaining basic knowledge about clinical manifestations and clinical recognition of certain diseases and injuries to the maxillofacial region, diagnosis and surgical and medicament therapy .
3.Learning outcomes:	At the end of classes, students must: <ul style="list-style-type: none"> • Maintain basic clinical recognition and presentation of various forms of diseases and injuries of the maxillofacial region. • Align algorithms in therapy (from the set clinical preconditions, adequate diagnosis, to addressing the patient to specialized clinics). • Maintain basic knowledge about interventive ambulant maxillofacial surgery.
4.Learning methods:	Interactive lectures
5.Evaluation methods:	The student's success in the exam and other forms of knowledge assessment is evaluated by a system comparable to the ECTS system as follows: <ol style="list-style-type: none"> a) 10 (A) -extraordinary success without mistakes or with insignificant mistakes, it makes 95 to 100 points; b) 9 (B) – above the average, with some mistake, makes 85-94 points; c) 8 (C) - average, with noticeable mistakes, makes 75-84 points; d) 7 (D) - generally good but with significant deficiencies,makes 65-74; e) 6 (E) - meets the minimum criteria, makes 55-64 points; f) 5 (F) – unsatisfying, not even the minimum criteria, less than 55 points.
6.Literature:Obligatory:	
1.Orthognathic Surgery - 2 Volume Set : Principles and Practice Hardback Saunders W.B. English By (author) Jeffrey C. Posnick Publication date 07 May2014 Publisher Elsevier Health Sciences	
2. Jatin Shah’s Head and Neck Surgery and Oncology 4th edition, by Jatin P. Shah, Snehal G. Patel, and Bhuvanesh Singh. Copyright 2012.Publisher Elsevier	
3. Atlas of Operative Maxillofacial Trauma Surgery: Primary Repair of Facial Injuries 2014th by Michael Perry, Simon Holmes. Publisher: Springer; 2014 edition (November 9, 2014)	
4. Fractures of the Facial Skeleton, 2nd Edition Michael Perry, Andrew Brown, Peter Banks.April 2015. Publisher: Wiley-Blackwell	
5. Cleft Lip and Palate Management: A Comprehensive Atlas 1st Edition by George K. B. Sándor (Author), David Genecov (Author), Ricardo D. Bennun (Editor), Julia F. Harfin (Editor) Publisher: Wiley-Blackwell; 1 edition (December 21, 2015) Expanded: other literature by local and foreign authors in the field of maxillofacial surgery	

Week	Form of teaching - MAXILLOFACIAL SURGERY	No.of hours
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Week 1	Lecture: Definition and basic concepts about the emergence of various inflammatory conditions of salivary glands (etiology, pathogenesis and therapy). Exercises: Seminars:	2 2
Week 2	Lecture: Tumors of Salivary glands - etiology, pathogenesis and therapy. Exercises: Seminars:	2 2
Week 3	Lecture: Congenital anomalies (bone deformities-disgnathias, lip and palate breaks) Exercises Seminars:	2 2
Week 4	Lecture: Traumatology in maxillofacial surgery - etiology, pathogenesis and therapy. Exercises Seminars:	1 2
Week 5	Lecture: Lower and upper jaw injuries (clinical image recognition, rtg diagnostics, conservative and surgical therapies) Exercises Seminars:	2 2
Week 6	Lecture: Zigomatic bone injuries (Clinical Image Recognition, Rtg Diagnostics, Conservative and Surgical Therapies) Exercises Seminars:	2 2
Week 7	Lecture: Orbital injuries (Clinical Image Recognition, Rtg Diagnostics, Conservative and Surgical Therapies) Exercises Seminars:	2 2
Week 8	Lecture: Injuries of intraorbital region (eye, eye muscles) and periorbital soft skin cover. (clinical image recognition, rtg diagnostics, conservative and surgical therapies) Exercises Seminars:	2 2
Week 9	Lecture: Injuries of the fronto-ethmoid complex.(clinical image recognition,rtg diagnostics, conservative and surgical therapies) Exercises Seminars:	2 2
Week 10	Lecture: Injuries of head and neck soft tissue in general, pathogenesis, rtg diagnostics Exercises Seminars:	2 2
Week 11	Lecture: Skin and subcutaneous tissue injuries and the treatment method (primary and secondary treatment of surgical wounds, postoperative protocol of antimicrobial therapy and pain therapy) Exercises Seminars:	2 2

Week 12	Lecture: Injuries of Essential blood vessels of head and neck - etiology, pathogenesis, diagnosis and therapy. Clinical picture of hemorrhagic shock and therapy method. Exercises Seminars:	2 2
Week 13	Lecture: Cranial nerve injury- etiology, clinical presentation and therapy method. Exercises Seminars:	2 2
Week 14	Lecture: Reconstructive Surgery (Basic Principles and types of lobes). Aesthetic Surgery. Exercises Seminars:	2 2
Week 15	Lecture: Temporomandibular joint conditions- etiology, pathogenesis, RTG diagnostics and therapy methods Exercises Seminars:	2 2
Weeks 17-18.	Final exam	
Weeks 19.-20.	Remedial exam	

Code: SFSOM1102E	COURSE TITLE: OTORHINOLARYNGOLOGY		
Level of study: undergraduate	Year: IV	Semester: XI	ECTS credits: 5
Course status: compulsory		Total classes: 45	
Professor in charge:			
Entry requirements: according to the regulations of studying in University of Sarajevo			

1. Course objectives:	<p>This course content enables students to acquire theoretical and practical knowledge from the course subject, which implies: - Knowledge about basic historical data important for otorhinolaryngology, and its division by disciplines</p> <ul style="list-style-type: none"> - Adoption of knowledge and skills of otorhinolaryngological examination and diagnostic methods - Acquiring basic knowledge from otology, pathological conditions and possible complications - Acquiring basic knowledge in pharyngology, mouth disease and paranasal sinuses (PNS), communication with mouth and tooth diseases - Getting to know the trauma in the facial area - Information of basic surgical procedures in otorhinolaryngology
2. Course purpose:	<p>Given the close communication between teeth and mouth disease with throat and PNS, it is clear that they are connected. Therefore, the purpose of the course is to introduce students of dentistry with basic knowledge in otorhinolaryngology, with special emphasis on those diseases that are causally related to diseases of the mouth and teeth</p>
3. Learning outcomes:	<p>Students will overwhelm the basics of otorhinolaryngological examination, diagnosis of diseases from the subject, and the possibilities of supplementary search methods that are available. A special emphasis in mastering knowledge and skills will be given to diseases of the mouth and throat, as well as PNS, which are closely related to the area of work of the dentist. Proper prevention and treatment of certain dental problems will prevent the development of severe inflammatory conditions in the throat and PNS.</p>
4. Learning methods:	<p>Teaching takes place in the form of:</p> <ul style="list-style-type: none"> - Ex cathedra lectures with interactive learning - Practical exercises for groups of no more than 10 students <p>Note: Interactive Learning (IU) implies a theoretical check of student knowledge from the lecturing area, which will be 10 minutes lasting. Then follows the discussion and subsequent clarification of some of the facts presented during the lecture, lasting also 10 minutes.</p>
5. Methods for student knowledge assessment	<p>Knowledge and skills in practical exercises will be valued by maximally 20 points, and students have to score the minimally 12 points in order to pass this form of knowledge assessment.</p>

	<p>Interactive learning will be valued by maximally 14 points, and students have to score the minimally 8 points in order to pass this form of knowledge assessment.</p> <p>Final exam will be valued by maximally 32 points, and students have to score the minimally 18 points in order to pass this form of knowledge assessment.</p> <p>Final grade is formed as follows: 10 (A) - 95-100 points, 9 (B) - 85-94 points, 8 (C) - 75-84 points, 7 (D) - 65 - 74 points, 6 (E) - 55-64 points, 5 (F, FX) - below 55 points.</p>
6. Recommended literature	Baley JB, Johnson JT, and Rosen CA. Bailey's Head and Neck Surgery. Lippincott Williams and Wilkins; 2013.
7. Exam questions	Exam questions are corresponding to the theoretical and practical topics in the course weekly teaching plan in XI semester.

WEEKLY TEACHING PLAN

XI SEMESTER

Week	Course form and content	number of classes
Week 1	Lecture: Introduction to otorhinolaryngology, ear anatomy with hearing and balance physiology	1
	Practical exercises: methods of examination in otology	2
Week 2	Lecture: Ear infections: acute and chronic	1
	Practical exercises: hearing and balance testing	2
Week 3	Lecture: Endocranial and exocranial otogenic complications	1
	Practical exercises: otomicroscopy	2
Week 4	Lecture: Anatomy and physiology of the nose	1
	Practical exercises: examination methods	2
Week 5	Lecture: Nasal infections: acute and chronic	1
	Practical exercises: nasal X-ray examinations	2

Week 6	Lecture: Nasal inflammation complications	1
	Practical exercises: nasal X-ray examinations	2
Week 7	Lecture: Anatomy and Physiology of paranasal sinuses	1
	Practical exercises: sinus X-ray examinations and comments	2
Week 8	Lecture: Sinus infections: acute and chronic	1
	Practical exercises: sinus X-ray examinations and comments	2
Week 9	Lecture: Endocranial and exocranial complications of sinusitis	1
	Practical exercises: patient examination	2
Week 10	Lecture: Nose and PNS tumors, facial injuries	1
	Practical exercises: patient examination	2
Week 11	Lecture: laryngitis: acute and chronic	1
	Practical exercises: patient examination	2
Week 12	Lecture: Tonsillary problems	1
	Practical exercises: patient examination	2
Week 13	Lecture: Anatomy and physiology of larynx	1
	Practical exercises: examination methods	2
Week 14	Lecture: paresis and paralysis of vocal cords	1
	Practical exercises: indirect laryngoscopy	2

Week 15	Lecture: Short introduction to endoscopic methods in otorhinolaryngology	1
	Practical exercises: introduction with the instruments for laryngoscopy	2
Week 17-18	Final exam	

Week 19-20	Final exam/retake	
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Code: SFSOS1103E	Course : FORENSIC MEDICINE AND DENTISTRY		
Level: Undergraduate	Year: VI	Semester: XI	ECTS credits: 5
Status: Obligatory			Total classes: 45 (30 + 15)
Responsible teacher:	Head of the Department		
Requirements for attending classes are in accordance with the Rules of study for the first cycle of studies at higher education institutions of the University of Sarajevo			
1. Objectives	<p>Upgrade the acquired knowledge of the inherited and acquired characteristics of the teeth, and their application in the identification procedures.</p> <p>Enable understanding of the role of teeth in DNA identifications</p> <ul style="list-style-type: none"> - Acquiring basic knowledge about the analysis of human bite - Providing insight into the legal and legal framework of the dentist's work 		
2. Purpose of the course	The purpose of the course is to train a student for basic procedures for identifying persons through dental methods. Additionally, students will be familiar with other fields of forensic dentistry, such as jurisprudence and forensic medical expertise.		
3. Learning outcomes	<p>After completing the course, the student must:</p> <ul style="list-style-type: none"> - to master the basis of dental identification methods - to master the basis of the analysis of traces of human bite - to know and understand the qualification of injuries to the dental system - To understand and understand the judicial and medical significance of the responsibility and mistakes of the dentist. 		
4. Teaching methods	<p>interactive lectures</p> <ul style="list-style-type: none"> - practical exercises and simulations - seminar work 		

5. Knowledge assessment methods	<p>The assessment contains the following elements:</p> <ul style="list-style-type: none"> - Regular attendance at lectures is a minimum of 3 and maximum of 5 points. Regular attendance in exercises is a minimum of 3 and a maximum of 5 points. - The first partial exam (organized in the 8th week of semester) is in written form and contains a practical assignment, MCQ and essay questions, and carry a minimum score of 20 and a maximum score of 30 points. It is considered completed as having at least 60% of correctly answered questions. - The second partial exam (organized in the 15th week of semester) is in written form and contains a practical assignment, MCQ and essay questions, with a minimum of 29 points and a maximum of 60. It is considered completed as having at least 60% of correctly answered questions. - Final examination for students who did not meet partial exams or are not satisfied with the grade is organized in the 17th week of semester. <p>Upon completion of the semester, the student can win a maximum of 100 points. The total number of points scored is translated into the final score:</p>
	<p>10 (A) outstanding, without fail or with minor errors 95-100 9 (B) above the average, with occasional errors 94-85 8 (C) average, with noticeable errors 75-84 7 (D) generally good, but with significant deficiencies 74-65 6 (E) meets the minimum criteria 55-64 5 (F, FX) does not meet the minimum criteria <55 5 (FX) does not meet the minimum criteria <50</p>
<p>6. Literature: Obligatory: 1. Whittaker DK, Mac Donald DG: A Color Atlas of Forensic Dentistry, Wolf Medical Publications Ltd, England, 1998. 2. Brkić H. I associates: Forensic dentistry, Školska knjiga dd Zagreb, 2000. Additional: 1. Stimson PG, Mertz CA Forensic Dentistry, CRC Press LLC, 1997. Expanded: 1. Irish JD, Nelson GC, Techniques and Applications in Dental Anthropology, Cambridge University Press, 2008</p>	

Week	FORENSIC MEDICINE AND DENTISTRY Form of teaching and materials	Number of hours
Week 1.	Lecture: History of development of forensic dentistry Exercises: Nomenclature and records in forensics Seminars: *	2 1
Week 2.	Lecture: Identification through dental methods, equipment and procedures Exercises: Analysis of AM and PM data sources Seminars: *	2 1

Week 3.	Lecture: Specific tooth and jaw features significant for forensic identification, hereditary and acquired Exercises: Recording of specific characteristics: simulation of dental practice. Seminars: *	2 1
Week 4.	Lecture: Interpol Identification Forms: AM and PM Exercises: Working on AM Forms of Interpol. Seminars: *	2 1
Week 5.	Lecture: Comparing AM and PM Data - Performing an Identification and Conclusion Exercises: Work on PM forms of Interpol. Seminars: *	2 1
Week 6.	Lecture: Estimation of age through dental methods Exercises: Visual, morphological, radiological, histological age assessment techniques. Seminars: *	2 1
Week 7.	Lecture: Gender assessment using skull, jaw and tooth analysis methods Exercises: Anthropological methods of gender assessment. Seminars:	2 1
Week 8.	Lecture: Assessing Race by Forensic Anthropology Methods Exercises: Writing forensic anthropological reports. First partial exam!	2 1
Week 9.	Lecture: DNA analysis in forensic dentistry Exercises: Case Study Simulation: Identification by Dental Methods. Seminars: *	2 1
Week 10.	Lecture: Mass disasters: role of dentist Exercises: Visit forensic laboratory and / or center. Seminars: *	2 1
Week 11.	Lecture: Analysis of bites marks- collection of evidence, recording and interpretation Exercises: Case simulation from practice: human bite. Seminars: *	2 1
Week 12.	Lecture: Forensic classification of dental trauma Exercises: Dental trauma: writing findings, supporting documentation, evidence materials. Seminars: *	2 1
Week 13.	Lecture: Jurisprudence and Expertise Exercises: Courtroom simulation: expert witness. Seminars: *	2 1
Week 14.	Lecture: Professional responsibility of dentists Exercises: Simulation courtroom Accused dentist. Seminars: *	2 1
Week 15.	Lectures: Case studies Exercises: Repetition and discussion. Second Partial exam!	2 1
Week 17.	Final exam	
Week 18.-20.	Exam-the second term	

* The implementation plan envisages one seminar work. Students will defend this seminar paper during the semester, in groups of three to five students in terms of agreement with the subject teacher and assistants.

Code: SFSOS1201E	Course title: RESTORATIVE DENTISTRY-PROSTHETIC DENTISTRY		
Level: Undergraduate	Year: VI	Semester: XII	Total ECTS points: 11
Status: Obligatory			Total hours: 180
Professor in charge	Head of the department of PROSTHETIC DENTISTRY		
Prerequisites for course attendance: Prerequisites have been set out by the Rules of Studies for the Integrated study program of the first and second cycles in establishments of higher learning at Sarajevo University.			
1. Aims of the course	To teach students the skills in independent clinical work		
2. Purpose of the course	To adapt student's ability for independent clinical work in restorative dentistry		
3. Learning outcomes	<p>Independent student's work in realization of complete therapy in restorative dentistry</p> <p>The skills that student needs to know independently (to know how and to do)</p> <p>To create independently and conduct therapy from restorative dentistry</p> <p>After attending lectures, the student acquires attitudes</p> <p>Complete overview of the importance of proper selection of dental therapies and conducting therapy</p> <ul style="list-style-type: none"> - the planning of indicated therapy - the realization of indicated therapy 		
4. Learning methods	<p>Learning takes place in the form of:</p> <ul style="list-style-type: none"> -lectures - practical teaching on the patient, exercises for all students 		

5. Evaluation methods	<p>Students are required to meet all the requirements prior to sitting the exam. The maximum score is 100 points. At this, 50% of points is awarded for a successful completion of pre-exam tasks while the final exam is awarded 50% of points.</p> <p>Acquired knowledge and skills are tested continually during the course.</p> <p>Within the total point score, 50% * of points is envisaged for activities and test during the semester: 40 % * of points for the mid-term test and 10 % * of points for attendance and other activities (2 points for attendance at classes, 4 points for attendance at practical exercises and 4 points for activity in practical exercises). The final exam is awarded maximum 50% *of points.</p> <p>As a rule, the mid-term test is given in a written form and taken in the week 8. of the semester.</p> <p>The final exam is given in a test form which is compiled for each exam term. Students sit the exam divided into A and B groups (if necessary, into C and D groups).</p> <p>The final exam can be awarded points only if the student achieves at least 55% of correct answers in exam.</p> <p>In accordance with the above the grade scale is as follows:</p>																							
	<table border="1" data-bbox="552 958 1386 1417"> <thead> <tr> <th data-bbox="552 958 719 1003">Grade</th> <th data-bbox="719 958 959 1003">ECTS points</th> <th data-bbox="959 958 1386 1003">Grade description</th> </tr> </thead> <tbody> <tr> <td data-bbox="552 1003 719 1081">10 (A)</td> <td data-bbox="719 1003 959 1081">95 - 100</td> <td data-bbox="959 1003 1386 1081">excellent without errors or with minor errors</td> </tr> <tr> <td data-bbox="552 1081 719 1160">9 (B)</td> <td data-bbox="719 1081 959 1160">85 – 94</td> <td data-bbox="959 1081 1386 1160">above average, with a few errors</td> </tr> <tr> <td data-bbox="552 1160 719 1211">8 (C)</td> <td data-bbox="719 1160 959 1211">75 – 84</td> <td data-bbox="959 1160 1386 1211">average, with noticeable errors</td> </tr> <tr> <td data-bbox="552 1211 719 1290">7 (D)</td> <td data-bbox="719 1211 959 1290">65 – 74</td> <td data-bbox="959 1211 1386 1290">generally good, but with significant mistakes</td> </tr> <tr> <td data-bbox="552 1290 719 1341">6 (E)</td> <td data-bbox="719 1290 959 1341">55 – 64</td> <td data-bbox="959 1290 1386 1341">satisfies the minimal criteria</td> </tr> <tr> <td data-bbox="552 1341 719 1417">5 (F)</td> <td data-bbox="719 1341 959 1417">< 55</td> <td data-bbox="959 1341 1386 1417">does not satisfy the minimal criteria</td> </tr> </tbody> </table> <p data-bbox="552 1417 1386 1469">* % = points</p> <p data-bbox="552 1469 1386 1644">All the exam questions need not be awarded the equal number of points. Decision on point scoring is made by the course leader before the exam.</p>			Grade	ECTS points	Grade description	10 (A)	95 - 100	excellent without errors or with minor errors	9 (B)	85 – 94	above average, with a few errors	8 (C)	75 – 84	average, with noticeable errors	7 (D)	65 – 74	generally good, but with significant mistakes	6 (E)	55 – 64	satisfies the minimal criteria	5 (F)	< 55	does not satisfy the minimal criteria
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6. Literature:	All dentistry books - periodontology, dental prosthodontics, oral surgery and restorative dentistry.																							

Week:	Teaching methodology L (lectures), P (practice)	P	L
Week 1:	<p>Lecture:</p> <ol style="list-style-type: none"> 1. A manifestation of local illnesses and lesions on the periodontium: clinical picture, diagnosis, differential diagnosis, a plan of therapy, and patient's motivation and education in oral hygiene. 2. A manifestation of systemic disease on the periodontium: clinical picture, diagnosis, differential diagnosis, a plane of therapy, and patient's motivation and education in oral hygiene. 3. High-risk patients in Periodontology Making a specific plan for the treatment of periodontal diseases. 4. Focal infections - diagnosis, treatment plan and preparing a patient for therapy protocol with these states. <p>Practice: presentation of anamnestic diagnostic procedures and clinical examinations in Periodontology, demonstration of work with high-risk patients and systemic diseases, use of the atlas and individual work with the patient</p>	6	6
Week: 2.	<p>Lecture:</p> <ol style="list-style-type: none"> 1. Complications of periodontal diseases - diagnostic procedures and therapy protocol with these states. 2. A medication therapy in periodontology- the local and systemic medical therapy (indications, contraindications and side effects). 3. Pre-prosthetic preparation of periodontium- the importance of the therapy of the periodontal diseases before the beginning of prosthetic remediation. 4. Maintenance of therapeutic results, the importance of recall (control examinations, a patient's remotivation, early detection of recurrence and therapy). <p>Practice: A demonstration of clinical examinations with Xray analysis in patients with complications in periodontal diseases, the local and systemic applications of medical therapy and individual work with the patient.</p>	6	6

<p>Week:3.</p>	<p>Lecture:</p> <ol style="list-style-type: none"> 1. A periodontal aspect of occlusion. 2. A clinical manifestation and diagnostic protocol of occlusal disorders 3. A therapy of occlusal disorders – splints. 4. Selective drilling in a therapy protocol of occlusal imbalance. <p>Practice: A demonstration of clinical examinations, analysis occlusal disorder by means of clinical examination, X-ray analysis, therapy procedures in the elimination of occlusal imbalance, use of the atlas and available literature and individual work with the patient</p>	<p>6</p>	<p>6</p>
<p>Week: 4.</p>	<p>Lecture:</p> <ol style="list-style-type: none"> 1. Gingival recession - types, division, favouring factors and the etiopathogenetic aspect 2. Mucogingival therapy protocol- indications, contraindications, surgical technics, and instruments. 3. Regenerative procedures in periodontal diseases, guided tissue regenerations, guided bone regenerations, use of collagen membranes, growth factors, platelet-rich plasma, therapeutic techniques, materials, and instruments. <p>Practice: presentation of anamnestic diagnostic procedures and clinical examination patient with a mucogingival anomaly, therapy procedures, use of the atlas and available literature, demonstration of the techniques and instruments for mucogingival surgery.</p>	<p>6</p>	<p>6</p>
<p>Week: 5.</p>	<p>Lectures:</p> <p>Fixed prosthodontics restorations (definition, indications, contraindications)</p> <p>Diagnosis, pre-prosthodontics treatment and therapy plan</p> <p>Anamnesis, clinical examination, diagnostic casts, surgical, periodontal, conservative and orthodontic treatment in therapy of fixed prosthodontics restorations. Principle of tooth preparations (preservation of tooth structure, retention, resistance, structural durability, marginal integrity, preservation of the periodontium) Impression for fixed prosthodontics restorations. Soft tissue management-gingival retraction. Selection of impression materials and impression techniques.</p> <p>Provisional fixed prosthodontics restorations (types, techniques, and cementation)</p> <p>Restoration of endodontically treated teeth. Traditionally and modern method of restoration endodontically treated teeth Individually cast post and prefabricated post</p> <p>Practice:Anamnesis, clinical examination, analysis of diagnostic casts</p> <p>Tooth preparations-basic principle Impression making for fixed prosthodontics restorations</p>	<p>6</p>	<p>6</p>

	<p>Working of provisional restoration Canal preparation for individually cast post Types of post for endodontically treated teeth</p>		
Week: 6.	<p>Lectures: Contemporary ceramic restoration (advantages and disadvantages) Indications and contraindications for dental ceramic restorations Definition and basic characteristics of dental bridges Parts of dental bridge. Planning, indications and contraindications. Classification of dental bridge. Planning of large dental bridges. Overview and interpretation of individual solutions in therapy partial edentulous patient with dental bridges. Clinical procedures of making dental bridge. Atypical crown (classification, indications and contraindications) The combined fixed-mobile works Stability of fixed prosthodontics restorations (mechanical, electrochemical stability, corrosive processes, causes and effects of corrosion) Cementation of restorations - types of cement for permanent cementation Procedure of no adhesive and adhesive cementation Practice: Tooth preparations for dental bridges Try-in metal framework Try in final restorations in oral cavity Cementation of restorations Cementation of post Manufacturing of atypical crown</p>	6	6
Week 7.	<p>Lectures: The consequences of partial tooth loss on the stomatognathic system, classification of partially edentulous arches Acrylic partial denture, Dental surveyor –and its application in planning and making removable partial dentures Removable partial denture, gingival part of the removable partial denture (major connectors, saddle), dental part of the denture (retention elements, stabilization elements, occlusal rests for axial loading), connection between the gingival and dental part of the denture Biostatics of removable partial denture Partial dentures with attachments - specifics of clinical part of manufacturing dentures Practice:Diagnostic and therapeutic procedures in prosthetic rehabilitation of partially edentulous patients</p>	6	6

Week: 8.	Lectures:		
	<p>Partial dentures with double crowns- specificity of clinical part of manufacturing denture</p> <p>Other constructive forms of partial denture</p> <p>Sub-total dentures</p> <p>Clinical procedures in treatment with removable partial dentures, Part I</p> <p>Clinical procedures in treatment with removable partial dentures, Part II</p> <p>Check-ups, corrections, repairs and relining of partial dentures</p> <p>Practice:Diagnostic and therapeutic procedures in prosthetic rehabilitation of partially edentulous patient</p>	6	6
Week 9.	<p>Lectures:</p> <p>Basic principles of oral surgical operation with emphasis on intraoperative and postoperative complications Cysts (definition, classification, clinical condition, diagnostic and possibility treatment)</p> <p>Acute odontogenic infection. Stages of odontogenic infection. Subperiosteal and submucous abscess. Phlegmon of the mouth floor. Odontogenic infection therapy – physical and medicaments’ approach. Therapeutic use of antibiotics.</p> <p>Practice:Clinical practice is conducted on real-life patients. Students continue improving their techniques of local and regional anesthesia as well as tooth/root extraction. Assistant delivers on topic: Basic surgical set and instruments for suturing and explains content of mandatory surgical set for suturing, He/she teaches students basic principles and techniques of suturing and different types of surgical sutures.</p>	6	6

Week 10.	<p>Lectures: Traumatic injuries of dentoalveolar system. The most common causes of primary and permanent teeth injuries. Treatment of patient with tooth injury. Classification of injuries.</p> <p>Oral surgical procedures in patients of risk groups Pre-prosthetic surgery. Terminology and systematization of physiological and pathological conditions, alveolar ridge atrophy. Hard and soft tissue hypertrophy. Surgical therapy of hypertrophic conditions. Exostoses, torus palatine, torus lingualis, tuberosity reduction, frenectomy, fibromatosis, foramen mental reposition. Vestibule profundation.</p> <p>Practical:Clinical practice is conducted on real-life patients. Students continue improving their techniques of local and regional anesthesia as well as tooth/root</p>	6	6
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Week 11.	<p>Lectures: Oroantral and Oronasal communications and fistulae: etiology, clinical picture and diagnosis. Oroantral and oronasal communications and fistulae: therapy, surgical methods. Benign tumors of the oral cavity. Epidermal epithelial tumors, Connective tissue tumors, Fat tissue tumors. Bone tumors, Cartilage tumors and vascular tumors.</p> <p>Practice:Clinical practice is conducted on real-life patients. Students continue improving their techniques of local and regional anesthesia as well as tooth/root extraction. Assistant delivers on topic: Basic surgical set and instruments for suturing and explains content of mandatory surgical set for suturing, He/she teaches students basic principles and techniques of suturing and different types of surgical sutures.</p>	6	6
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Week 12.	<p>Lecture: Importance of medical anamnesis, diagnosis Endodontic treatment of patients with cardiovascular disease Endodontic treatment in diabetic patients Endodontic treatment of patients with blood diseases</p> <p>Practice:Students treat teeth with caries and other hard tissue tooth loss and debate treatment plans under the guidance of clinical instructors.</p>	6	6
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Week 13.	Lecture: Endodontic treatment of patients with cancer. Endodontic treatment in patients after organ transplantation. Endodontic treatment in patients with mental illness Endodontic treatment patients with musculoskeletal disorders Practice: Students treat teeth with caries and other hard tissue tooth loss and debate treatment plans under the guidance of clinical instructors.	6	6
Week 14.	Lecture: Human Immunodeficiency Virus (HIV) and endodontics. Endodontic management of patient with substance abuse Management of the endodontic patients with neurological diseases Medicaments in endodontics Practice: Students treat teeth with caries and other hard tissue tooth loss and debate treatment plans under the guidance of clinical instructors.	6	6
Week 15.	Lecture: Pain control for endodontic procedures in patients with systemic disorders Case report Case report Practice: Students treat teeth with caries and other hard tissue tooth loss and debate treatment plans under the guidance of clinical instructors.	6	6
Week 17.-18.	Final exam		
Week 19.-20.	Remedial exam		

Code: SFSOS1202E	COURSE TITLE: COMPREHENSIVE PEDODONTICS		
Level: undergraduate	Year: VI	Semester: XII	ECTS credits : 6
Status: Obligatory			Total classes: 90 (45+45)
Professor in charge:	Head of the Department		
Entry requirements: In accordance with the study rules for the first cycle studies at higher education institutions of the University of Sarajevo			

1. Objectives of the course:	By the end of the course students should have adequate knowledge and necessary skills required for carrying out the activities such as the diagnosis, prevention and treatment of dental and periodontal diseases, traumatic injuries of teeth and other oral tissues in children and adolescents, as well as to be acquainted with interceptive orthodontics and comprehensive dental treatment including prosthetics.
2. Purpose of the course	The purpose of this course is to, through course lectures and clinical training, guide students in providing dental treatment for children and adolescents. Dental treatment that is provided should place emphasis on patient education, treatment planning, management of dental, gingival and periodontal pathological conditions, traumatic injuries, and prevention of dental disease.
3. Learning outcomes	<p>By the end of the course the student should be able to:</p> <ul style="list-style-type: none"> - encourage a positive attitude and behavior in children towards oral health. - take full relevant detailed history. - perform proper extra-oral and intra-oral examination - interpret radiographs - make a provisional diagnosis based on information collected - decide an appropriate treatment plan - treat dental and other oral diseases occurring in pediatric patients, as well as traumatic injuries - counsel the parents in regards to treatment modalities - manage the medically and mentally challenged children
4. Teaching methods/ attendance	<p>The course is performed in the form of:</p> <ul style="list-style-type: none"> • Lectures ex cathedra for all students • Clinical work/ training- groups according to standard • Consultations • Students' individual work • Problem based learning (PBL) – interactive learning <p>Students are allowed absence from up to 10% of all classes (theoretical as well as practical) Formal excuse is required in case of absence from up to 20% of course (shorter illness, extracurricular activities such as scientific and other kind of projects, workshops, meetings and personal emergencies). Failing to comply with attendance requirements, students will not be allowed to take the final examination and would be required to repeat the course.</p>

5. Assessment methods	<p>Students will be able to score up to 100 points at the end of a course. Final grade will be based on these 3 elements:</p> <p>1. Clinical training up to 20 points:</p> <ul style="list-style-type: none"> - Individual activities are awarded with 1 point (taking medical and dental history, clinical intra- and extra-oral examination, treatment plan, prevention plan, restorative treatment of primary and young permanent teeth, endodontic treatment, extraction of primary teeth) up to maximally 10 points during a semester - PBL study up to 10 points <p>2. Midterm exam up to 30 points:</p> <ul style="list-style-type: none"> - will be held in the 7th week of the course, covers the course content taught from 1st to 6th week of the semester - oral form of exam, students will answer to 3 questions and should demonstrate sufficient knowledge to each of them (grade E or more). - if the student fails, it will be possible to retake the exam during the final examination with one question (fourth) added <p>3. Final exam up to 50 points:</p> <p>A). Oral examination up to 30 points Oral form of exam, covers the course content taught from 7st to 15th week of the semester, the student has to answer to 3 questions and should demonstrate sufficient knowledge to each of them (grade E or more). B). clinical assignment up to 20 points</p> <p>The grading scale for this course consists of the standard scale below: A (10) = 95- 100 points B (9) = 85- 94 points C (8) = 75- 84 points D (7) = 65- 74 points E (6) = 55-64 points F (5) - below 55 points, minimum requirements have not been met (FAILED)</p>
6. Literature:	<p>Mandatory reading materials:</p> <ol style="list-style-type: none"> 1. Welbury R, Duggal MS, Hosey MT. Paediatric dentistry. 5th ed. Oxford: Oxford University Press 2018. 2. Koch G, Poulsen S, Espelid I, Haubek D, eds. Pediatric dentistry. A clinical approach. 3rd ed. Oxford: Wiley-Blackwell; 2017. 3. Cameron AC, Widmer RP. Handbook of pediatric dentistry. 4th ed. Edinburgh: : Mosby 2013. <p>Supplementary reading materials:</p> <ol style="list-style-type: none"> 4. Dean JA, Avery DR, McDonald RE, eds. McDonald and Avery's Dentistry for the Child and Adolescent. 10th ed. St Louis, Mo: Mosby Elsevier Inc; 2016 5. Pinkham JR, Casamassimo PS, Fields HW, McTigue DJ, Nowak AJ. Pediatric dentistry, Infancy through adolescence. 4th edition. St. Louis: Elsevier Saunders, 2005.

Week	Comprehensive Pedodontics Lectures/practical	Hours
Week 1.	Lecture: Dental radiology diagnostics for children. Temporomandibular joint disorders. Clinical work: Medical and dental history, clinical intra- and extra-oral examination, treatment plan, prevention plan, restorative treatment of primary and young permanent teeth, endodontic treatment, extraction of primary teeth	3 3
Week 2.	Lecture: Endodontic treatment of primary teeth. Clinical work: Medical and dental history, clinical intra- and extra-oral examination, treatment plan, prevention plan, restorative treatment of primary and young permanent teeth, endodontic treatment, extraction of primary teeth	3 3
Week 3.	Lecture: Endodontic treatment of the young permanent dentition. Clinical work: Medical and dental history, clinical intra- and extra-oral examination, treatment plan, prevention plan, restorative treatment of primary and young permanent teeth, endodontic treatment, extraction of primary teeth	3 3
Week 4.	Lecture: Pediatric oral surgery procedures (tooth extraction, inflammatory processes in oral tissues and jaw bones) Clinical work: Medical and dental history, clinical intra- and extra-oral examination, treatment plan, prevention plan, restorative treatment of primary and young permanent teeth, endodontic treatment, extraction of primary teeth	3 3
Week 5.	Lecture: Traumatic dental injuries (epidemiology, classification, diagnosis, initial treatment) Traumatic dental injuries in the primary dentition Clinical work: Medical and dental history, clinical intra- and extra-oral examination, treatment plan, prevention plan, restorative treatment of primary and young permanent teeth, endodontic treatment, extraction of primary teeth	3
Week 6.	Lecture: Traumatic dental injuries in the young permanent dentition. Clinical work: Medical and dental history, clinical intra- and extra-oral examination, treatment plan, prevention plan, restorative treatment of primary and young permanent teeth, endodontic treatment, extraction of primary teeth	33 3
Week 7.	Midterm exam/ partial exam Clinical work: Medical and dental history, clinical intra- and extra-oral examination, treatment plan, prevention plan, restorative treatment of primary and young permanent teeth, endodontic treatment, extraction of primary teeth	3 3
Week 8.	Lecture: Oral manifestations of systemic diseases in children and adolescents Clinical work: Medical and dental history, clinical intra- and extra-oral examination, treatment plan, prevention plan, restorative treatment of primary and young permanent teeth, endodontic treatment, extraction of primary teeth	3 3
Week 9.	Lecture: Dental management of the medically compromised children Clinical work: Medical and dental history, clinical intra- and extra-oral examination, treatment plan, prevention plan, restorative treatment of primary and young permanent teeth, endodontic treatment, extraction of primary teeth	3 3

Week 10.	Lecture: Pediatric emergency dental care and principles of appropriate antibiotic use in children.	3
	Clinical work: Medical and dental history, clinical intra- and extra-oral examination, treatment plan, prevention plan, restorative treatment of primary	3
Week 11.	Lecture: Management of pregnant patient in dentistry	3
	Clinical work: Medical and dental history, clinical intra- and extra-oral examination, treatment plan, prevention plan, restorative treatment of primary and young permanent teeth, endodontic treatment, extraction of primary teeth	3
Week 12.	Lecture: Pediatric dental prosthetics	3
	Clinical work: Medical and dental history, clinical intra- and extra-oral examination, treatment plan, prevention plan, restorative treatment of primary and young permanent teeth, endodontic treatment, extraction of primary teeth	3
Week 13.	Lecture: Child abuse and neglect	3
	Clinical work: Medical and dental history, clinical intra- and extra-oral examination, treatment plan, prevention plan, restorative treatment of primary and young permanent teeth, endodontic treatment, extraction of primary teeth	3
Week 14.	Lecture: Evidence-based dentistry. Esthetics in pediatric dentistry	3
	Clinical work: Medical and dental history, clinical intra- and extra-oral examination, treatment plan, prevention plan, restorative treatment of primary and young permanent teeth, endodontic treatment, extraction of primary teeth	3
Week 15.	Lecture: Initial assessment and treatment planning in pediatric dentistry.	3
	Clinical work: Medical and dental history, clinical intra- and extra-oral examination, treatment plan, prevention plan, restorative treatment of primary and young permanent teeth, endodontic treatment, extraction of primary teeth	3
Week 17-18.	Final examination	
Week 19.-20.	Final examination/ retake	

Code: SFS0158		Name of the course subject: CLINICAL PERIODONTOLOGY	
Level: Undergraduate	Year: 6	Semester: XI	ECTS credits: 5
Status: Compulsory			Total hours: 45
Faculty advisor:			
Requirements for taking the course: Requirement for taking the course “Clinical periodontology” is passing the course “Basic periodontology”.			
1. Course objectives	The goal of the course is to teach the students of the Faculty of Dental Medicine about the significance of periodontal surgical procedures with the aim to restore the morphologically-physiological condition of the periodontium. To inform the students about the indications, techniques and the instruments required for surgical procedures, as well as modern methods of guided tissue and bone regeneration. To introduce the students with the significance of periodontal aspects of occlusion, occlusion analysis, balancing the occlusion and tooth stabilization by means of a splint.		
2. Purpose of the course	The purpose of the course is to use theoretical and practical lessons to present and methodologically incorporate modern scientific and clinical knowledge about the significance and the results of methods of periodontal surgery and occlusal balance. The aim is to introduce the students with the adequate application of medications (locally and systematically) in periodontal therapy, preoperatively and postoperatively.		
3. Learning outcomes	<p>By attending the course “Clinical periodontology” the students will be able to adopt the following skills and knowledge:</p> <p>Module 1- Periodontal surgery. The aim of the module is to introduce the students with the indications, contraindications, techniques, and instruments for gingivectomy, slice-surgery, mucogingival surgery, as well as modern methods for guided bone-tissue regeneration.</p> <p>Module 2- Periodontal aspect of occlusion. The aim of the module is to introduce the students to the notion of statics, articulation and dynamics, occlusal disorders and their impact of the formation of periodontal diseases. The aim is to point out the significance of clinical and X-ray examinations on the periodontium due to occlusal imbalance and introduce the students with the therapy protocol (selective drilling, using splints).</p> <p>Module 3- Medication therapy in periodontology. The aim of the module is to introduce the students to the local and systemic medical therapy which, in periodontology, is indicated in the treatment of acute and chronic states, preoperatively and postoperatively.</p> <p>After attending the course the students should be able to adopt the following standpoints:</p>		

	<ol style="list-style-type: none"> 1. basic doctrinaire approach to the methods of periodontal surgery 2. knowledge about indications, contraindications, premedication, as well as instruments for every surgical method; 3. to recognize occlusal disorder by means of clinical examination, X-ray analysis, as well as to understand therapy procedures in the elimination of occlusal imbalance.
4. Teaching methods	<p>The course is held:</p> <ol style="list-style-type: none"> 1. lecture ex- cathedra for all the students 2. clinical exercises (practice)
5. Methods of learning assessment	<p>One of the forms of activity is lecture and practical exercises attendance. Points can be acquired in the following way:</p> <ul style="list-style-type: none"> - regular lecture attendance - 5 points, - practice attendance – 5 points - learning assessment by means of a test – 15 points - (in week 7 a written learning assessment – indications, contraindications, work techniques in periodontal surgery) - case representation – 20 points - (in week 10, written elaboration of a clinical case) - practical exam - 10 points - oral learning assessment - 45 points. <p>A maximum number of points is 100.</p> <p>According to the above-mentioned, the grading scale is as follows:</p> <ol style="list-style-type: none"> g) 10 (A) - exceptional results without mistakes or with insignificant mistakes, a total of 95-100 points; h) 9 (B) - above average, with few mistakes, a total of 85-94 points; i) 8 (C) - average, with noticeable mistakes, a total of 75-84 points; j) 7 (D) - generally good, but with significant shortcomings, a total of 65-74 points; k) 6 (E) - fulfills minimum criteria, a total of 55-64 points; l) 5 (F,FX) - does not fulfil minimum criteria, , 0-54 points.
6. Literature:	<p>Literature:</p> <p>Obligatory:</p> <ol style="list-style-type: none"> 4. Lindhe J.Karring T.,Lang N.CLINICAL PERIODONTOLOGY AND IMAPLANT DENTISTRY. Fourth eidtion. Blackell Munksgard, 2003. 5. Wolf H.; Edith M. Rateitschak E.M.; Rateitschak H.K.PERIODONTOLOGY. Third edition.Thieme.2005. 6. Zuhr,O.Plastic, Esthetic, Periodontal, and Implant Surgery. Hurzeler. Quintessence, 2012. 7. Additional references : Lectures

A DETAILED PLAN OF THE SYLLABUS:

Week	A Form of teaching and curriculum	Number of hours
Week 1	Lecture: Introductory lecture – basic principles of periodontal surgery Practice: Individual work with a patient Seminars:	1 2
Week 2	Lecture: Gingivectomy Practice: Individual work with a patient Seminars:	1 2
Week 3	Lecture: Periodontal surgery Practice: Individual work with a patient Seminars:	1 2
Week 4	Lecture: Periodontal surgery Practice: Individual work with a patient Seminars:	1 2
Week 5	Lecture: : Periodontal surgery Practice: Individual work with a patient Seminars:	1 2
Week 6	Lecture: Mucogingival surgery Practice: Individual work with a patient Seminars:	1 2
Week 7	Lecture: Mucogingival surgery	1 2

	Written learning assessment by means of a test: (indications, contraindications and work techniques in periodontal surgery)	
Week 8	Lecture: Periodontal aspect of occlusion	1
	Practice: Individual work with a patient	2
	Seminars:	

Week 9	Lecture: Periodontal aspect of occlusion	1
	Practice: Individual work with a patient	2
	Seminars:	
Week 10	Lecture: Splints in Periodontology	1
	Practice: Individual work with a patient	2
	Seminars:	
Week 11	Lecture: Guided tissue regeneration	1
	Written elaboration of a clinical case	2
Week 12	Lecture: Guided bone regeneration	1
	Practice: Individual work with a patient	2
	Seminars:	
Week 13	Lecture: Medication therapy in Periodontology	1
	Practice: Individual work with a patient	
	Seminars:	2
Week 14	Lecture: Medication therapy in Periodontology	1
	Practice: Individual work with a patient	
	Seminars:	2

Week 15	Lecture: Supporting periodontal therapy Practice: Individual work with a patient Seminars:	1 2
Week 17	Final exam (practical and writing learning learning assessment)	
Week 18-20	Makeup exam date for students who have not passed the final exam.	

The answers to the exam questions can be found within topics of lectures listed in syllabus for the aforementioned courses.

Code: SFSOS1105E		COURSE: DENTAL IMPLANTS	
Level: Undergraduate	Year: VI	Semester: XI and XII	ECTS credits:8
Status: Obligatory			Total classes: 120 (60+60)
Professor in charge	Head of the Department		
Entry requirements (passed exams from the previous years)			
1. Course objective	The aim of the course is to provide the student with knowledge in the field of implant therapy in accordance with professional and scientific developments in the field of modern dental science.		
2. Purpose of the course	Introduction to basic terms in implantology, materials in implantology, anatomic preconditions, indications and contraindications for implantation, planning pre-operative preparations. Learning the surgical techniques of implant insertion, implant supported crowns and bridges, implant overdentures, intraoperative and postoperative complications, importance of oral hygiene and methods for maintaining the health of peri-implant tissues.		
3. Learning outcomes	Learning outcomes: student will master the elementary knowledge and skills for independent work in field of dental implants.		
4. Teaching methods	Teaching is performed in the form of: - lectures - hands-on		

5. Knowledge assessment methods	<p>At the end of the course the student can acquire a total of 100 points. Within the total point score, the student can acquire a maximum of 50 points during each semester for attendance, activity and partial exam:</p> <ul style="list-style-type: none"> - lecture attendance - 2 points, - attendance and activity in practical exercises - 2 points - partial exam - 46 points <p>The partial exam will be held in the 15th week in both semesters. Students sit the partial exam in the form of a test, which is compiled for each exam term, divided into A and B groups (if necessary, C and D groups). The partial exam is awarded points only if it has a score of at least 55% of correct answers. Each exam question need not be awarded the equal number of points.</p> <p>The points that the student acquires in both semesters together make the final grade.</p> <p>According to the above, the rating scale is as follows:</p>
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Grade	Number of points	Description of grade
10 (A)	95 - 100	outstanding success without error or with minor errors
9 (B)	85 – 94	above average, with some mistake
8 (C)	75 – 84	average, with noticeable errors
7 (D)	65 – 74	generally good, but with significant disadvantages
6 (E)	55 – 64	satisfies the minimum criteria
5 (F)	< 55	does not satisfy the minimum criteria

The final exam will be held in the 17-18 th week at the end of the course for students who have not passed the first and/or the second partial exam.

The remedial exam will be held in the 19-20 th week at the end of the course for students who have not passed the first and/or the second partial exam.

In addition, remedial exams are also held in September.

6. Literature:

1. Carl E. Misch. Contemporary Implant Dentistry. Third edition. Missouri: Mosby Elsevier; 2008.
2. D. Wismeijer, S Chen, D Buser, F. Müller, S. Barter, ITI Treatment Guide. Implant therapy in the Geriatric Patient. Berlin. Quintessence Publishing. 2016.
3. Niklaus P. Lang, Jan Lindhe. Periodontology and Implant Dentistry. Sixth edition. West Sussex: Wiley Blackwell; 2015.

DENTAL IMPLANTS LECTURES- MODUL 1. – XI SEMESTER		
Week	Lecture theme	Number of hours
Week 1.	Anatomy consideration in implant dentistry a. Surgical anatomy of the maxilla <ul style="list-style-type: none"> - Sensor innervation of the maxilla - Maxillary artery - Vein drainage of the maxilla - Lymph drainage of the maxilla - Muscle insertion of the maxilla 	2
Week 2.	b. Surgical anatomy of the mandible <ul style="list-style-type: none"> - Muscle insertion of the mandible - innervation of the mandible - Blood vessels of the mandible c. Dissemination of dental infection	2
Week 3.	Clinical biomechanics in implant dentistry <ul style="list-style-type: none"> a. Loads applied to dental implants b. Mass, force and weight c. Force delivery and failure mechanism d. Moment of inertia 	2
Week 4.	Bone physiology, metabolism and biomechanics <ul style="list-style-type: none"> a. Osteology: maxilla, mandible and TMJ b. Specific methods of evaluation c. Bone Classification d. Modeling and remodeling e. Growth and maturation of the cortex f. Deposition of calcium g. Metabolic bone disorders h. Wound healing of the bone tissue 	2
Week 5.	Seminars for students- Discussion of previous lecture themes	2

Week 6.	<p>Evaluation of the patient for implant treatment</p> <ol style="list-style-type: none"> a. Diagnostic protocol and techniques in implant dentistry b. Forces factors related to health condition in patients c. Chewing dynamics d. Position of dental arches e. Risk factors 	2
Week 7.	<p>Pre-implant prosthodontics consideration: evaluation, specific criteria and pre-implant prosthodontics solution</p> <ol style="list-style-type: none"> a. Maxillary anterior tooth position b. Vertical dimension c. Occlusal plane d. Lip angle e. Maxilla-mandibular arch relationship f. Existing occlusion g. Temporomandibular joint h. Fixed prosthodontics restorations i. Removable prosthodontics j. Esthetic evaluation k. Psychological profile l. Financial barrier m. Progressive load 	2
Week 8.	Seminars for students- Discussion of previous lecture themes	2
Week 9.	<p>Surgical protocol of implant placement “STEP BY STEP” Surgical set introduction implantology set</p> <ol style="list-style-type: none"> a. introduction b. Implant positioning at partial edentulous patient c. Implant positioning at complete edentulous patient d. e. 	2
Week 10.	<ol style="list-style-type: none"> e. Surgical incision f. Pilot drill g. Twistdrill h. Bone spreading i. Treatment of the cortex before implant placement j. Implant and cover screw placement k. Selection of suture technique and surgical thread l. Bone replacement before, during and after implant insertion m. Medical treatment of patients with dental implants n. Complications during and after implant placement 	2

Week 11.	<p>Prosthetic treatment in patients with dental implants</p> <ol style="list-style-type: none"> a. Learning about prosthetics abutments and tools in dental implantology b. Impression technique in dental implantology c. Role and importance of occlusal anatomy and height of artificial teeth in patients with dental implants d. Procedures and options for replacing one tooth e. Methods and possibilities of replacing more teeth in partially edentulous patients f. Procedures and possibilities for replacing all lost teeth with totally edentulous patients 	2
Week 12.	Seminars for students- Discussion of previous lecture themes	2
Week 13.	Sinus lift	2
	<ol style="list-style-type: none"> a. Anatomy of maxillary sinus b. Learning about surgical and implant tools and materials used in sinus lift procedure 	

Week 14.	<ol style="list-style-type: none"> c. Opening of the lateral wall d. Elevation of sinus mucosa- Schneiderian membrane e. Resorbable membrane placement f. placement and condensation of artificial bone g. Implant and SIS positioning h. Unresorbable membrane placement i. Selection of suture technique and surgical thread j. Medical treatment of patients k. Complications during and after sinus lift l. 	2
Week 15.	Recapitulation on previous Themes	2

HANDS - ON: MODULE 1. – XI SEMESTER

Week	content of hands-on	Number of hours
Week 1.	Anamnesis and first check	2
Week 2.	Methods of patient evaluation for implant treatment	2
Week 3.	Analysis of different types of dental x-rays for evaluation for implantation and planning	2
Week 4.	Implant and surgical sets- introduction	2
Week 5.	Types of anesthesia in dental implantology	2
Week 6.	Types of suture	2

Week 7.	Preparation of the surgical field in implant dentistry	2
Week 8.	Implant placement in mandible	2
Week 9.	Implant placement in maxilla	2
Week 10.	Sinus lift technique	2
Week 11.	Impression techniques and pour cast model	2
Week 12.	Abutments	2
Week 13.	Fixation of finished prosthodontics	2
Week 14.	LIVE SURGERY	2
Week 15.	LIVE SURGERY	2

**DENTAL IMPLANTS
LECTURES- MODULE 2. – XII SEMESTER**

Week	Subject theme	Number of hours
Week 1.	Introductory lecture - Prosthodontic therapy - endodontically-prosthodontic therapy - prosthodontic-implant therapy -	2
Week 2.	Prosthodontics indication for implant therapy - topographic - functional - phonation - aesthetic - demanding	2
Week 3.	Prosthodontics-implant team - dentist - dental assistant - dental technician	2
Week 4.	First pre- prosthodontics phase - Preliminary impressions - Determination and fixation of occluso- vertical dimension - Pour cast - Master model fixation in articulator	2
Week 5.	Production of surgical stents	2

Week 6.	<p>First post- operative phase – making a temporary prosthodontic replacement</p> <ul style="list-style-type: none"> - making a temporary crown - making a transitional prosthesis for one tooth or more teeth - making a transitional prosthesisfor edentulous patient 	2
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Week 7.	<p>Second post- operative phase –Impressions</p> <ul style="list-style-type: none"> - Design method - Transfer method - One- phase impressions - Two step correction impression - Sandwich technique impression taking 	2
Week 8.	<p>Laboratory procedures in prosthodontic treatment</p> <ul style="list-style-type: none"> - preparation of impression for cast making - laboratory abutment placement - Gingival mask placement - cast making - master model placement and fixation into the articulator - abutment selection by height, shape and width - final prosthodontics restoration with abutments 	2
Week 9.	<p>Construction of implant supported crowns</p> <ul style="list-style-type: none"> - single tooth missing - Interrupted dental arch - shortened dental arch - Temporary restorations - occlusal screw retained crown - transversal screw retained crown - restoration that are being cemented - videoprojection 	2
Week 10.	<p>Implant supported fixed restoration</p> <ul style="list-style-type: none"> - shortened dental arch - in combination with natural tooth - videoprojection 	2
Week 11.	<p>Prosthodontic- implant therapy of completely edentulous patients</p> <ul style="list-style-type: none"> - bar retained complete denture - attachment retained complete denture 	2

	<ul style="list-style-type: none"> - videoprojection Prosthodontic- implant therapy of completely edentulous patients - Telescope retained complete denture - Magnet retained complete denture 	
Week 12.	<ul style="list-style-type: none"> Prosthodontic- implant therapy of completely edentulous patients - Computed navigated implantation - videoprojection 	2
Week 13.	<ul style="list-style-type: none"> Forces applied on dental implants- Types of forces - functional - radial - sagittal - transversal - combined forces 	2
Week 14.	<ul style="list-style-type: none"> Implant- prosthodontics hygiene - Importance of hygiene for durability of prosthodontics- implant therapy - Products for implant- prosthodontics hygiene 	2
Week 15.	<ul style="list-style-type: none"> Durability of prosthodontics- implant therapy - Responsibility of oral surgeon - Responsibility of prosthodontics specialist - Factors that lead to loss of prosthodontics restorations - Factors that lead to implant loss 	2

HANDS- ON: MODULE 2. – XII SEMESTER		
Week	content of hands-on	Number of hours
Week 1.	Immediate loading	2
Week 2.	Healing abutment: type, role and importance in prosthodontic	2

Week 3.	Fixed prosthodontics on dental implants Impression taking: transfer setting, impression tray, impression materials, Impression technique	2
Week 4.	Master model: pour cast, gingival mask adaptation, model finalization	2
Week 5.	Determination of occluso- vertical dimension in dental implantology	2
Week 6.	Types of abutment: abutment choosing and modelation of prosthodontics restoration	2
Week 7.	Metal evaluation phase	2
Week 8.	Evaluation sequence, glaze and cementation of fixed prosthodontic restoration	2
Week 9.	Removable prosthodontics on dental implants- planning	2
Week 10.	Impression taking: transfer setting, impression tray, impression materials, impression technique	2
Week 11.	Master model: pour cast, gingival mask adaptation, model finalization, baseplate and wax rim	2
Week 12.	Determination of occluso- vertical dimension in dental implantology	2
Week 13.	Clinical probe	2
Week 14.	Locators on dental implants (direct and indirect)	2
Week 15.	Finished overdenture with locators	2
Weeks 17-18.	Final exam	
Weeks 19.-20.	Remedial exam	

SIXTH YEAR ELECTIVE COURSE

Code: SFSIS1106E	Name of subject: RECONSTRUCTION OF ENDODONTICALLY TREATED TEETH		
Study programme:	Year: VI	Semester: XI	ECTS credits: 5,0
Integrated studies			
Status: optional			Total classes:45(P1+V2)
Course leader:			
Conditions for attending classes: condition are regulated by the rules of study for the Integrated study program of the first and second cycles in establishments of higher education at Sarajevo University.			
1. Objectives of the course:	Prepare students for work on patients in the field of fixed dental prosthetics in the field of reconstruction of endodontically treated teeth. Enable students to be trained in the development of indicated prosthetic treatments in the field of reconstruction of endodontically treated teeth.		
2. Purpose of the course:	The purpose of the course is to enable the student to independently make decisions and perform the therapeutic reconstruction of endodontically treated teeth with the development of appropriate prosthetic compensation.		
3. Learning outcomes:	<p>Through the course of the course Reconstruction of endodontically treated teeth, the student will acquire the following knowledge</p> <p>It will master the theoretical and practical procedure of indicating, preparing endodontically treated teeth and producing prosthetic care, by the process of making appropriate prosthetic restoration on the reconstructed endodontically treated tooth.</p> <p>Skills that a student needs to know independently: Examine the patient</p> <p>Prepare a patient for making prosthetic work on an endodontically treated tooth</p> <ol style="list-style-type: none"> 1. Independent patient reception 2. Independent examination of the patient and selection of possible therapy 3. Self-selecting X-ray images and overstretching teeth status 4. Independent preparation of the tooth canal for the upgrade hut 5. Independently fix the upgrade hub in the root canal 6. Impression techniques and procedures 7. Restoration try-in 8. Cementation 9. Guidelines for the patient 		

4.Learning methods:	<ul style="list-style-type: none"> - ex-catedra lectures (L) for all students - practical exercises - written exercises 																					
5. Evaluation methods	<p>Students are required to meet all the requirements prior to sitting the exam. The maximum score is 100 points. At this, 50% of points is awarded for a successful completion of pre-exam tasks while the final exam is awarded 50% of points.</p> <p>Acquired knowledge and skills are tested continually during the course Within the total point score, 50% * of points is envisaged for activities and test during the semester: 40 % * of points for the mid-term test and 10 % * of points for attendance and other activities (2 points for attendance at classes, 4 points for attendance at practical exercises and 4 points for activity in practical exercises). The final exam is awarded maximum 50% *of points.</p> <p>As a rule, the mid-term test is given in a written form and taken in the week 8. of the semester.</p> <p>The final exam is given in a test form which is compiled for each exam term. Students sit the exam divided into A and B groups (if necessary, into C and D groups).</p> <p>The final exam can be awarded points only if the student achieves at least 55% of correct answers in exam.</p> <p>In accordance with the above, the grade scale is as follows:</p> <table border="0" style="width: 100%;"> <thead> <tr> <th style="text-align: left;">Grade</th> <th style="text-align: left;">ECTS points</th> <th style="text-align: left;">Grade description</th> </tr> </thead> <tbody> <tr> <td>10 (A)</td> <td>95 - 100</td> <td>excellent without errors or with minor errors</td> </tr> <tr> <td>9 (B)</td> <td>85 – 94</td> <td>above average, with a few errors</td> </tr> <tr> <td>8 (C)</td> <td>75 – 84</td> <td>average, with noticeable errors</td> </tr> <tr> <td>7 (D)</td> <td>65 – 74</td> <td>generally good, but with significant flaws</td> </tr> <tr> <td>6 (E)</td> <td>55 – 64</td> <td>satisfies the minimal criteria</td> </tr> <tr> <td>5 (F)</td> <td>< 55</td> <td>does not satisfy the minimal criteria</td> </tr> </tbody> </table> <p>* % = points</p> <ul style="list-style-type: none"> • All the exam questions need not be awarded the equal number of points. Decision on point scoring is made by the course leader before the exam. 	Grade	ECTS points	Grade description	10 (A)	95 - 100	excellent without errors or with minor errors	9 (B)	85 – 94	above average, with a few errors	8 (C)	75 – 84	average, with noticeable errors	7 (D)	65 – 74	generally good, but with significant flaws	6 (E)	55 – 64	satisfies the minimal criteria	5 (F)	< 55	does not satisfy the minimal criteria
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5 (F)	< 55	does not satisfy the minimal criteria																				
<p>6. Literature:</p> <p>Required literature :</p> <p>Herbert T. Shillingburg, Jr, Sumiya Hobo, Lowel D: Whitsett, Richard Jacobi, Susan E. Brackett. Quintessense books 1997</p> <p>Additional:</p> <p>All textbooks from fixed clinical prosthetics, from endodontics, in all languages Internet</p>																						

COURSE SCHEDULE

Week	Course load	Number of hours

<p>Week 3.</p>	<p>Lecture: Root preparation -instruments and tools for work</p> <p>RTG control Practice: - student work on a patient - medical and dental history - extraoral and intraoral examination - send the patient on X-ray Students prepare the endodontically treated teeth of the intercanine sector Seminars :</p>	<p>1</p> <p>2</p>
<p>Week 4.</p>	<p>Lecture: Root preparation of endodontically treated teeth - general principles - grinding with turbine drill - grinding by conventional grinding machines</p> <p>Practice: - impression techniques and procedures - students do the preparation of teeth in anterior-posterior sector Seminars:</p>	<p>1</p> <p>2</p>
<p>Week 5.</p>	<p>Lecture: Root preparation of the intercanine sector of the tooth in the upper jaw Root preparation of the maxillary incisors</p> <p>Practice: - students do the preparation of teeth in anterior-posterior sector -sutdents: try-in metal construction for individually cast post: - towards gingiva, in proximal contact, occlusal-incisal - occlusal check Seminars:</p>	<p>1</p> <p>2</p>

Week 15.	Lectures: Restoration of endodontically treated teeth-trends Practice: -student try in the restoration -student cement the restoration Seminars:	1 2
Week16.	Final exam	
Week 17.	Supplementary classes and correctional exams will be conducted in accordance with the Law on Higher Education.	
Week 17.-20.		

COURSE SYLLABUS:DENTAL EMERGENCIES

CODE: SFSIS1107		COURSE TITLE: DENTAL EMERGENCIES	
LEVEL: UNDERGRADUATE	YEAR: VI	SEMESTER: XI	ECTS POINTS: 7
STATUS: ELECTORAL	NUMBER OF WEEKS: 15	WEEKLY HOURS:3 (lectures 1 + practicals 2) TOTAL HOURS: 45 (lectures 15 + practicals 30)	
LECTURER IN CHARGE: HEAD OF DEPARTMENT			
Requirements for taking the course: Requirements regulated by the Rule book on studying at the first cycle of studies at the University of Sarajevo.			
1. Course objectives	After completion of classes and exams, the student should be able to recognize and provide the first aid in most urgent situations in dentistry, and to participate in terms of adequate assistant in the delivery of first aid performed by a doctor.		
2. Purpose of the course	Dental emergencies: urgent conditions that do not endanger the patient's life, urgent conditions that endanger the patient's life. Emergency situations, emergency interventions, accidental conditions. Prevention of E.R.: aspect of mental preparation and premedication.		
3. Learning outcomes	By attending the course "Dental emergencies" students will adopt the following skills and knowledge of principles of cardiopulmonary cerebral reanimation (CPR) in adults: ABC order in reanimation (respiratory pathway, ventilation, chest compression), medication therapy, pathways of medication, practical application of CPR algorithms, monitoring patient.		
4. Teaching methods	Interactive lectures, continuous assessment of knowledge.		
5. Methods of learning assessment	The student can achieve a maximum of 100 points by fulfilling pre-examination obligations and passing the exams. The final grade will be formed on the following elements:		

	<p>-Mandatory presence - 30 points. -The final exam will consist of a theoretical part in the form of a written test which is mandatory and evaluates 70 points. The student can achieve a maximum of 100 points by fulfilling pre-examination obligations and passing the exams. The final grade will be formed on the following elements: -Mandatory presence - 30 points. -The final mandatory exam which will consist of a theoretical part in the form of a written test - 70 points. GRADING SCHEMA: A (10) = 95 – 100 B (9) = 85 - 94 C (8) = 75 - 84 D (7) = 65 - 74 E (6) = 55 – 64* F Student that score 55-69% can take additional exam. Students that score below 55% have to take the course again.</p>
6. Literature:	<p>MANDATORY:</p> <ol style="list-style-type: none"> 1. Household B, Sulejmanagić H, Mustagrudić D, Gojkov T. Oral surgery, and part, II edition, Editor: Sulejmanagić H. Sarajevo: Usbih; 1998. 2. Sulejmanagić H. Infections of Dentogenic etiology. Sarajevo: Usbih; 2000. 3. Perović J, Jojić B. Oral surgery. Belgrade 2000. 4. Todorović et al, Oral surgery; Publishing company Science, and edition, 2002. 5. F.M. Andreasen, J.O. Andreasen, L.K. Bakland, M.T. Flores. Traumatic teeth injury, 2008. 6. Petrovic V, Gavrić M: Urgent conditions in dentistry. Draganić, Belgrade, 1995.

Consultation every working day from 11 am to 1 pm.

LECTURES

NO	CONTENT	HOURS
Week 1	Dental emergencies. The role of dentists in solving urgent medical conditions. Prevention of E.R.: a aspect of mental preparation and premedication. An overview of the E.R. in the dental office. Judicial-medical responsibility of dentists in solving the urgent medical conditions. Standards, certificated personel and equipment for life threatening situations.	1
Week 2	Urgent cardiovascular conditions: sinus bradycardia, sinus tachycardia, angina pectoris, hypertensive crisis, acute myocardial infarction. Initial treatment of acute myocardial infarction. Cardiopulmonary cerebral reanimation in adults. Cardiopulmonary cerebral reanimation in children.	1
Week 3	Urgent respiratory conditions: laryngospasm, laryngeal oedema, bronchospasm, respiratory obstruction. Foregin bodies in upper airway. Treatment of acute bronchial asthma attack. Cardiopulmonary cerebral reanimation in adults. Cardiopulmonary cerebral reanimation in	1

	children. Airway and artificial ventilation: establishment and maintenance of the respiratory tract, use of oropharyngeal and nasopharyngeal tube, endotracheal intubation, application of laryngeal mask, reanimation balloon, portable respirator.	
Week 4	Dental emergencies: diabetes mellitus, hypoglycemic shock, hyperglycemic crisis. Acute adrenaline crisis. Hyperthyroidism (thyrotoxicosis).	1
Week 5	Episcopal unconscious conditions: syncope, collapse, epileptic attack, hysterical attack, acute stroke, coma, rarer forms of episodic consciousness disorder. Treatment of conditions of consciousness disorder. Airway management in unconscious patients.	1
Week 6	Allergic reactions: systemic and local. Anaphylactic reaction and anaphylactic shock.	1
Week 7	Toxic reaction to local anesthetics. Determination of the maximum dose of local anesthetic. Assessment of anesthetic usage.	1
Week 8	Painful conditions: diagnosis of orofacial pain, origin of pain in the orofacial area, characteristics of orofacial pain.	1
Week 9	Bleeding: causes, types. Hemostasis: Mechanical methods, chemical methods, biological methods, physical methods.	1
Week 10	Bleeding as a consequence of surgical interventions in the oral cavity. Bleeding as a result of injuries of soft and bone facial tissue and jaw.	1
Week 11	Odontogenic infections: etiology, clinical picture, diagnosis and differential diagnosis. Acute dentogenic infection. Treatment of dentogenic infection. Surgical treatment of dentogenic infections: principles of intraoral and oral incisions, drainage. Therapeutic use of antibiotics. Assessment of adequate antibiotics. Pathways spread the dentogenic infection. Complications of dentogenic infection.	1
Week 12	Injuries to the oral cavity, jaw and face: first aid in injury to the oral cavity.	1
Week 13	Injuries to the oral cavity, jaw and face: first aid in dental injury and jaw.	1
Week 14	Dental emergencies in the course of dental therapy: urgent conditions during the application of local anesthesia and in the extraction of teeth. Complications during surgical procedures, complications in the execution of incisions, complications when working with surgical instruments, complications in the course of surgical interventions, complications in the course of stitching, post-operative complications.	1
Week 15	Dental emergencies in the course of dental therapy: aspiration, swallowing of foreign objects, endodontic emergency conditions, periodontology, prosthetics. Urgent conditions that do not endanger the patient's life.	1
NOTE: Consultation with students every working day from 11 am to 1 pm		

PRACTICALS

Practical classes are held at the Department and Clinic of Oral Surgery (15 classes – 30 hours)

NO	CONTENT	HOURS
Week 1	Dental emergencies: urgent conditions that do not endanger the patient's life, urgent conditions that endanger the patient's life. Emergency	2

	situations, emergency interventions, accidental conditions. Prevention of E.R.: aspect of mental preparation and premedication.	
Week 2	Practical training on the phantom: establishment of the airway, prevention of hypopharyngeal obstructions, airway cleaning, foreign body in the respiratory tract, placement of oropharyngeal and nasopharyngeal tube, endotracheal intubation, placement of the laryngeal mask. Active participation in real situations with patients.	4
Week 3	Practical training on the phantom: the placement of the peripheral vein line-cannula, administering intramuscular and intravenous injections. Oxygenotherapy, introduction to equipment and how to apply oxygen. Active participation in stated procedures involving patients.	4
Week 4	Principles of cardiopulmonary cerebral reanimation (CPR) in adults: ABC order in reanimation (respiratory pathway, ventilation, chest compression), medication therapy, pathways of medication, practical application of CPR algorithms, monitoring patient. Specificity of cardiopulmonary cerebral reanimation in children. Active participation in real situations with patients.	4
Week 5	Anti-shock therapy.	4
Week 6	Complications in the course and after application of anesthesia and extraction: diagnosis, methods of disposal-treatment. Local complications during and after applications of different techniques of anesthesia. General complications during and after the local anesthesia application: Collapse, syncope, toxic reaction, allergic reaction, epileptic and hysterical attack. Basic procedures and first aid measures for sudden loss of consciousness. Demonstration of the principles of treatment of patients with complications. Interview and discussion of complications during extraction through analysis of x-rays and photographs from oral surgery casuistry.	2
Week 7	Painful conditions: origin of pain in the orofacial region. The significance of the history and clinical examination of the patient. Diagnosis and differential diagnosis of orofacial pain. Origin of pain in orofacial area: teeth, periodontium, bone pain, pain in the tongue, temporomandibular joint, maxillary sinus, diseases of the saliva glands, otitis. Acute and chronic orofacial pain. Demonstration of the means for the treatment of alveolitis: Alvogyl, Nebacetin stakes, a bandage of the zinc oxide eugenol. Methods of preparing surgical bandage zinc oxide eugenol application, significance and indications.	2
Week 8	Basic surgical kit and accessories for placing surgical seam: basic surgical instruments, significance of minimum (mandatory) surgical set and sewing kits, basic principles for setting surgical stitches, types of surgical nodes, surgical knot binding techniques. The compress demonstrates basic types of stitches and gives students the opportunity to try the same. Active presence in operating room.	2
Week 9	Methods of injury treatment. The wound procedure. Hemostasis. Preparing Iodoform gauze. Local hemostasis: Mechanical methods (digital compression, superficial tamponade, deep tamponade, blood court ligature), local and general chemical hemostatic, biological agents (gelatin preparations). Demonstrating the means to stop bleeding: mechanical, biological, physical. Active presence in surgical ambulance.	2

Week 10	Treatment of odontogenic infections: the assistant demonstrates the planned intervention (tooth extraction or residual root), intraoral incision depending on the clinical case. The patient's assistant demonstrates the direction of incisions in the surgical treatment of odontogenic abscess, explains the basic principles of incisions and draining the contents of the abscess, how to make all kinds of drains, the process of preparing iodoform gauze of different concentrations. Methods of administration, dose, combination of medication in odontogenic infections.	2
Week 11	Methods of immobilization of traumatic uncoordinated and extracted teeth, the process of making acrylic (Pfeiffer) splint, wire-composite splint. Demonstration of immobilization methods in the treatment of traumatic dental injuries. Direct immobilization method using acrylate splint on a student volunteer.	2
Week 12	Diagnostic protocol and providing dental services to children with disabled persons without diagnosed mental retardation.	2
Week 13	Diagnostic protocol and providing dental services to children with disabled persons without diagnosed mental retardation.	2
Week 14	Presence and assisting students in conducting oral surgical interventions in persons with disabled persons in general anesthesia.	2
Week 15	Presence and assisting students in conducting oral surgical interventions in persons with disabled persons in general anesthesia.	2
Week 17	Written learning assessment- test.	
Week 18-20	Repeated test for students who have not passed the written exam.	

Code:SFSIS1108E	COURSE TITLE: FIXED ORTHODONTIC APPLIANCES		
Level: Undergraduate	Year: VI	Semester: XI	ECTS credits: 8
Status: Elective			Total classes: 60 (L 30 + P 30)
Course head:	Head of the Department		
Requirements for the course: Defined by the Law			
1. Aims of the course	The aim is to introduce fixed orthodontic techniques to students		
2. Course content and Learning Objectives	The purpose of the course is to provide basic information to students about fixed orthodontic appliances, effects, side effects, and limitations.		
3. Learning outcomes	By the end of the course, the student will Acquire the knowledge in: Modern aesthetic and non-aesthetic fixed orthodontic appliances (advantages and limitations).		

4. Teaching and learning methods	Lectures, seminars, discussion.
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5. Assessment methodology	<p>Student knowledge is assessed during semesters. At the end of the course, there is the final exam.</p> <p>All scheduled written and oral exams during the semesters are mandatory.</p> <p>During semester continuing scoring will be done based on the PBL session, practical work. PBL essay with relevant reference list will be scored 0-25 points.</p> <p>Partial exam (Problem based learning - PBL) during 8 week. Maximal score 25 points.</p> <p>Active participation in PBL session discussion (based on evidence based dentistry) will be scored 0-10 points. Maximal score during semester is 50 points.</p> <p>The final exam is written (essay) -maximal score is 25 points.</p>
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Scoring	Scale in points					
	0	1- 5	6 - 10	11-16	17-22	23- 25
Idea and logic of essay	Totally wrong theme Insufficiently elaborated topic	Very Low theme elaboration	Low theme elaboration	Good theme elaboration	Very good theme elaboration	Very good theme elaboration High level of elaboration and logic, multidisciplinary approach etc.
Essay structure	No structure	Very low essay structure	Low essay structure	Good essay structure	Very good essay structure	High level of essay structure
Clarity and style	Absence of complete sentences Poor and / or inaccurate choice of words Serious writing mistakes	Very few completed sentences	Some completed sentences	Some completed sentences Good or accurate choice of words	Clarity of text is present Good or accurate choice of words	High level of Clarity of text is present

Activity	Maximal points
Continuing evaluation during semester	75
Final exam	25
Total	100

Final mark:

Points	Mark
0 - 54	5
55 - 64	6
65 - 74	7
75 - 84	8
85 - 94	9

95 – 100	10
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6. Literature:

1. Proffit WR, Fields HW, Sarver DM. Contemporary orthodontics, 4th edition. St. Louis: Mosby; 2006. (or newer edition)
2. Isaacson KG, Williams JK et al. Fixed orthodontic appliances
3. E-learning content

Week	Fixed orthodontic appliances Teaching methodology -L (lectures),P (practice)	
Week 1.	L: Introduction (History of the fixed orthodontic appliances) P: Typodont - parts of the fixed orthodontic appliances	2 2
Week 2.	L: Development of fixed orthodontic techniques P: Demonstration of the bracket placement	2 2
Week 3.	L: Tweed technique P: Wire bending	2 2
Week 4.	L: MBT technique P: PBL (problem based learning) and in office presentation of the treatment with MBT	2 2
Week 5.	L: Roth technique P: PBL and in office presentation of the treatment with Roth	2 2
Week 6.	L: Self-ligating brackets P: PBL and in office presentation of the treatment with SL	2 2
Week 7.	L: Lingual technique 2D P: PBL and literature review	2 2

Week 8.	L: Lingual technique 3D P: PBL and literature review	2 2
Week 9.	L: Segmental orth. technique P: PBL and in office presentation of the treatment with segmental	2 2
Week 10.	L: Fixed orthodontic treatment in periodontally compromised patients P: PBL and in office presentation of the patient treatment	2 2
Week 11.	L: Fixed orthodontic treatment in medically compromised patients P: PBL and in office presentation of the patient treatment	2 2
Week 12.	L: Fixed orthodontic treatment in medically compromised patients P: PBL and in office presentation of the patient treatment	2 2
Week 13.	L: Materials in fixed orthodontic treatments P: PBL	2 2
Week 14.	L: Materials in fixed orthodontic treatments P: PBL	2 2
Week 15.	L: Allergies P: PBL	2 2
Week 17.	Final exam	
Weeks 18.-20.	Makeup exam and summer school (if necessary)	

Code: SFSIS1109E	Course title: AMBULANTAL ORAL AND MAXILLOFACIAL SURGERY		
Level: undergraduate	Year: VI	Semester: XI	ECTS credits: 6
Status: Elective			Total classes: 45 (15 + 30)
Responsible teacher:	Head of the Department		
Conditions for attending classes:			
I. Objectives of the course	Introducing students with the meaning of outpatient surgery and gaining basic insights from various forms or operational procedures that are performed.		

2. Purpose of lectures	Acquiring practical knowledge and performance of certain operating techniques performed ambulatory in local anesthesia.
3. Learning outcome	After completing classes, students must: <ul style="list-style-type: none"> • To master basic theoretical insights of outpatient surgery • To master the basic surgical skills of outpatient surgery • Conceive the postoperative monitoring of outpatient patients
4. Learning methods	Interactive lectures
5. Methods of assessment of knowledge	The exam is written in a text form containing 10 questions. For a transient grade it is necessary that 60% of the answer is correct. Each test period is compiled with new tests, divided into groups A, B, and C. The final exam represents 50% of the final grade. The regular attendance at the lesson is 50% of the final grade. Upon completion of the semester, a student can earn a maximum of 100 points. According to the above, the scale rating is as follows:> 50 points- <ul style="list-style-type: none"> a)10 (A) -experienced success without error or with minor mistakes, bears 91-100 points; b)9 (B) - above the average, with some mistake, it is 81-90points; c)8 (C) - average, with noticeable errors, bears 71-80 points; d)7 (D) - generally good, but with significant defects,wears 61-70; e)6 (E) - meets minimum criteria, bears 51-60 points; f) 5 (F) -not meets minimum criteria, less than 55points.
6. Literature: Obligatory: 1.Textbook of Oral and Maxillofacial Surgery, Neelima Anil Malik. Publication date 01 Aug 2016. Publisher Jaypee Brothers Medical Publishers. 2.Oral and Maxillofacial Diseases, Fourth Edition, Crispian Scully, Stephen Flint, Published June 15, 2010. Publisher INFORMA, London. Expanded: Other textbooks of interventional dentistry.	

week	AMBULANTAL ORAL AND MAXILLOFACIAL SURGERY The form of teaching and materials	Number of hours
week 1.	Lecture: Surgical topography of the head and neck Exercises: Seminars:	2 1
week 2.	Lecture: Significance of outpatient surgery Exercises: Seminars:	2 1

week 3.	Lecture: Division of operational procedures within ambulatory procedures in local anesthesia Exercises: Seminars:	2 1
week 4.	Lecture: Probatory biopsy Exercises: Seminars:	2 1
week 5.	Lecture: Elliptical excision of skin and mucous membranes overcoming the defect by direct sutures Exercises: Seminars:	2 1
week 6.	Lecture: An incision of abscess in the mouth area of the mouth, oral cavities and extraoral regions Exercises: Seminars:	2 1
week 7.	Lecture: Ambulatory surgery on oral mucous membranes- in general Exercises: - Seminars :.	2 1
week 8.	Lecture: Ambulatory surgery on bone tissues of the upper and lower jaws-in general Exercises: - Seminars:	2 1
week 9.	Lecture: Post-operative follow-up (overcoming pain therapy and antimicrobial therapy) Exercises: - Seminars:	2 1
week 10.	Lecture: Analysis of postoperative results Exercises: - Seminars:	2 1
week 11.	Lecture: Drainage systems in ambulatory surgery Exercises: Seminars:	2 1
week 12.	Lecture: Necessary diagnostic procedures in outpatient care surgery Exercises: Seminars	2 1
week 13.	Lecture: Necessary laboratory analysis in outpatient clinics surgery Exercises: Seminars:	2 1
week 14.	Lecture: Specificity of outpatient surgery in chronic patients: -cardiovascular diseases, blood disorders, hepatitis, specific diseases Exercises: Seminars:	2 1

week 15.	Lecture: Intra and postoperative complications in outpatient surgery / diagnosis and therapy method / Exercises: Seminars:	2 1
week 17.	Final test	
Week 18-20.	Remedial exam	

Code: SFSIM1110E		COURSE TITLE: RADIOLOGY	
Level of study: undergraduate	Year: VI	Semester: XI	ECTS credits: 5
Course status: elective		Total classes: 45	
Professor in charge: Head of the Department			
Entry requirements: no entry requirements			
1. Course objectives:	Introduce students within the general radiology with the history of radiology, development and appearance of Roentgen X-ray tube and genesis of X-rays, their effects on living matter and application in diagnostics, principles of classic radiological and modern digital techniques (ultrasound, digital angiography, computerized tomography, magnetic resonance), emergency conditions in radiology and interventional radiological procedures, and PACS and teleradiography.		
2. Course purpose:	Introduce students with the significance and place of classical and newest classical and digital diagnostic methods, their useful and harmful properties, as well as with the relationship and place of classical and digital imaging techniques in relation to laboratory and clinical diagnostic procedures, in order to get the right diagnosis as soon as possible, based on the aforementioned radiological methods of imaging.		
3. Learning outcomes:	Through the course subject the student will adopt the following knowledge: Module 1 Introduction to classical radiology The goal of the module is to introduce a student with a definition, division and place of radiology as science, a radiological equipment, a radiological photographic material, the principles of genesis of the radiological image, projection effects and types of shadows, the		

	<p>principles of radioscopy and radiography, and their advantages and disadvantages.</p> <p>Module 2. Radiographic procedures In this module, the student receives information on radiography of the central nervous system, skeleton, diascopy and radiography of the lungs and heart, digestive tract radiological examinations, and special radiological methods, as well as contrast radiographs of other areas where contrast media are used, with basic information on contrast media and emergency conditions related to the application of the same, digital and interventional techniques and anesthesia in radiology, when preparing for the examination of certain radiological and pediatric patients.</p> <p>Module 3. Radiological protection It encompasses the effects of ionizing radiation and the effects of other radiation on organism, radiological protection, units used in radiology for the evaluation of radiation effects, and legal regulations essential for the professional protection of persons exposed to radioactive radiation and patients.</p> <p>Module 4: Digital radiological techniques It includes history, principles, the physics on which they are based, the way in which they are used, and introduction with basic pathological processes that can be analyzed by these methods.</p> <p>The skills that the student should adopt and can practically perform:</p> <ol style="list-style-type: none"> 1. Description of the organization, structure and equipment of the Radiology Clinic 2. Identification of radiological equipment (classical and digital equipment) 3. Identification of photographic material (film, cassette, chamber-dry view laser imager system) and PACS equipment. 4. Differentiation of protective agents in radiology. 5. Identification and description of the radiography of cranium and cervical spine, radiographs of skeletons, and special radiological imaging (classic tomography, radiography, tomosynthesis, mammography, xeroradiography, seriography, X-ray cinemathography, elastography, ultrasound, CT, and MRI recordings of the head and neck area). 6. Perform radioscopy and radiography (area of the head and neck, thyroid gland, larynx, special skull imaging, sinus, mastoid and orbit). 7. Performing contrast radiological examinations (angiography, sialography and myelography, ultrasound, CT and MRI contrasting radiological examinations). 8. Performing emergency procedures in radiology.
<p>4. Learning methods:</p>	<p>Course content will be presented in the form of:</p> <ul style="list-style-type: none"> - lectures, - practical exercises, - Seminars in interactive groups of no more than 10-20 students

	During the seminars, different methods of learning methods will be used: discussion, case studies or seminar work and its presentation.
5. Methods for student knowledge assessment	<p>Grading method: Regular attendance is valued by 5 points</p> <p>Continuous assessment of knowledge during lectures and practical exercises (colloquium, partial exam, etc.)</p> <p>Seminar work is valued by 10 points Oral exam or written test Oral exam has 5 questions; answer to 3 questions and partial answer to the other ones = 6; answer to 4 questions and partial answer to the other ones = 7-9; answer to all of 5 questions = 8-10. With seminar work done and regular attendance at lectures.</p> <p>Written test - 20 questions (answer 11-12 questions and partial answer to other questions = 6; answer to 13-14 questions and partial answer to other questions = 7; answer to 15-17 questions and partial answer to the other ones = 8; answer to 18-19 questions = 9, answer to 20 questions = 10). With seminar and regular attendance at lectures. Final grade is formed as follows: 10 (A) - 95-100 points, 9 (B) - 85-94 points, 8 (C) - 75-84 points, 7 (D) - 65 - 74 points, 6 (E) - 55-64 points, 5 (F, FX) - below 55 points.</p>
6. Recommended literature	<ol style="list-style-type: none"> 1. Gunderman R. Essential Radiology, Clinical Presentation, Pathophysiology, Imaging. Thieme; 2006. 2. Richardson M. Fundamentals of Diagnostic Radiology. Baltimore: Williams&Wilkins; 2003.
7. Exam questions and weekly teaching plan	Exam questions and weekly teaching plan are corresponding to the course learning outcomes and knowledge assessment methods.