SCHOOL OF DENTAL MEDICINE
UNIVERSITY OF BELGRADE

INTEGRATED UNDEGRADUATE AND MASTER`S ACADEMIC STUDIES

STUDY PROGRAM

INTEGRATED STUDIES OF DENTAL MEDICINE

SYLLABUS

Belgrade, 2020

41	*I_2_09*	*Microbiological Aspects of Infection Control in Dentistry*	*Basic Dental Sciences*	*4*	*30*	*30*		*2*	49
42	*I_2_10*	*Biofilm in Dentistry and Medicine*	*Basic Dental Sciences*	*4*	*30*	*30*		*2*	50
43	*I_2_11*	*Informatics in Dental Medicine*	*Basic Dental Sciences*	*4*	*30*	*30*		*2*	51
44	*I_2_12*	*Physical Properties of Dental Materials*	*Basic Dental Sciences*	*4*	*30*	*30*		*2*	52
45	*I_2_13*	*Biophysics in Dentistry*	*Basic Dental Sciences*	*4*	*30*	*30*		*2*	53
46	*I_2_14*	*Viral Infections in Dentistry*	*Basic Dental Sciences*	*4*	*30*	*30*		*2*	54
47	*I_2_15*	*Microbiological Diagnostics of Infections in the Oropharyngeal Region*	*Basic Dental Sciences*	*4*	*30*	*30*		*2*	55
48	*I_2_16*	*The Concept of Personalized Medicine in Dentistry*	*Basic Dental Sciences*	*4*	*30*	*30*		*2*	56
49	*I_2_17*	*Comparable Dental Anatomy*	*Clinical Dental Sciences*	*4*	*30*	*30*		*2*	57
50	ST20PAFI	Pathophysiology	Basic Dental Sciences	5	60	30		8	58
51	ST20PRMP	Preclinical Mobile Prosthodontics	Clinical Dental Sciences	6	30	45		7	59
52	ST20BOZP	Restorative Odontology-Preclinical	Clinical Dental Sciences	5,6	30	60		7	60
53	ST20OPHI	General Surgery	Clinical Medical Sciences	6	45	45		6	61
54	ST20INME	Internal Medicine	Clinical Medical Sciences	5	45	60		6	62
55	ST20MEDB	General Medicine	Clinical Medical Sciences	5	45	15		4	63
56	ST20REND	Fundamentals of Clinical Radiology	Clinical Medical Sciences	5,6	60	60		9	64
57	ST20FARM	Pharmacology in Dentistry	Basic Dental Sciences	5	60	30		7	65
58	*I_3_01*	*New Technologies in the Prevention and Suppression of Solid Dental Tissue Lesions*	*Clinical Dental Sciences*	*6*	*30*	*30*		*3*	67
59	*I_3_02*	*Specificity of Oral Hygiene in Special Patient Groups*	*Clinical Dental Sciences*	*6*	*30*	*30*		*3*	68
60	*I_3_03*	*Prophylactic Measures in Restorative Dentistry*	*Clinical Dental Sciences*	*6*	*30*	*30*		*3*	69
61	*I_3_04*	*Physical Basis of Diagnostic and Therapeutic Methods*	*Basic Dental Sciences*	*6*	*30*	*30*		*3*	70
62	*I_3_05*	*Saliva As a Diagnostic Fluid*	*Basic Dental Sciences*	*6*	*30*	*30*		*3*	71
63	*I_3_06*	*Drug Abuse and Dental Practice*	*Basic Dental Sciences*	*6*	*30*	*30*		*3*	72
64	*I_3_07*	*Etiopathogenesis of Oral Cavity Diseases*	*Clinical Dental Sciences*	*6*	*30*	*30*		*3*	73
65	*I_3_08*	*Molecular Mechanisms Involved in the Pathogenesis of Shock*	*Clinical Dental Sciences*	*6*	*30*	*30*		*3*	74
66	*I_3_09*	*Cellular and Molecular Mechanisms in the Pathogenesis of Atherosclerosis*	*Clinical Dental Sciences*	*6*	*30*	*30*		*3*	75
67	*I_3_10*	*Emergency Conditions in Internal Medicine and Dental Practice*	*Clinical Medical Sciences*	*6*	*30*	*30*		*3*	76
68	*I_3_11*	*Systemic Complications Caused by Oral Infections*	*Clinical Medical Sciences*	*6*	*30*	*30*		*3*	77
69	*I_3_12*	*Emergencies in General Surgery*	*Clinical Medical Sciences*	*6*	*30*	*30*		*3*	78
70	*I_3_13*	*X-Ray Image Interpretation*	*Clinical Medical Sciences*	*6*	*30*	*30*		*3*	79
71	*I_3_14*	*Dental Biomechanics*	*Clinical Dental Sciences*	*6*	*30*	*30*		*3*	80
72	*I_3_15*	*Communication Skills In Dental Practice*	*Clinical Dental Sciences*	*6*	*30*	*30*		*3*	81
73	*I_3_16*	*Professional Ethics in Dentistry*	*Clinical Dental Sciences*	*6*	*30*	*30*		*3*	82
74	*I_3_17*	*Digital Photography*	*Clinical Dental Sciences*	*6*	*30*	*30*		*3*	83
75	*I_3_18*	*Color in Dentistry*	*Clinical Dental Sciences*	*6*	*30*	*30*		*3*	84
76	ST20ANES	Anesthesia in Dentistry and Basic Principles of Oral Surgery	Clinical Dental Sciences	8	30	45	45	7	85
77	ST20REOD	Restorative Odontology	Clinical Dental Sciences	7,8	30	135	45	10	86
78	ST20MOBI	Removable Prosthodontics	Clinical Dental Sciences	7,8	30	180	60	10	87
79	ST20FPRO	Preclinical Fixed Prosthodontics	Clinical Dental Sciences	7	15	45	30	7	88
80	ST20ORME	Oral Medicine	Clinical Dental Sciences	7	30	30	30	7	89
81	ST20PAR1	Preclinical Periodontology	Clinical Dental Sciences	8	30	30	30	7	90

82	ST20PREN	Preclinical Endodontics	Clinical Dental Sciences	8	15	30	30	6	91
83	*I_4_01*	*Materials for Direct Esthetic Restorations*	*Clinical Dental Sciences*	*8*	*30*	*15*		*3*	93
84	*I_4_02*	*Discolorations of Vital Teeth*	*Clinical Dental Sciences*	*8*	*30*	*15*		*3*	94
85	*I_4_03*	*Minimum Intervention Cariology*	*Clinical Dental Sciences*	*8*	*30*	*15*		*3*	95
86	*I_4_04*	*Dental Care for Children with Rare Diseases*	*Clinical Dental Sciences*	*8*	*30*	*15*		*3*	96
87	*I_4_05*	*Biochemistry of Body Fluids*	*Basic Dental Sciences*	*8*	*30*	*15*		*3*	97
88	*I_4_06*	*Clinical Significance of the Topographical Anatomy of the Head and Neck*	*Basic Dental Sciences*	*8*	*30*	*15*		*3*	98
89	*I_4_07*	*Clinical Significance of the Cranial Nerves*	*Basic Dental Sciences*	*8*	*30*	*15*		*3*	99
90	*I_4_08*	*Head and Neck Cancer Prevention*	*Clinical Dental Sciences*	*8*	*30*	*15*		*3*	100
91	*I_4_09*	*Antibiotic Prophylaxis in High-Risk Patients*	*Clinical Dental Sciences*	*8*	*30*	*15*		*3*	101
92	*I_4_10*	*Ambulatory Sedation in Dentistry*	*Clinical Dental Sciences*	*8*	*30*	*15*		*3*	102
93	*I_4_11*	*Periodontal Manifestations of Local and Systemic Diseases*	*Clinical Dental Sciences*	*8*	*30*	*15*		*3*	103
94	*I_4_12*	*Prophylaxis in Contemporary Periodontal Treatment*	*Clinical Dental Sciences*	*8*	*30*	*15*		*3*	104
95	*I_4_13*	*Oral Potentially Malignant Disorders and the Contemporary Concept of Diagnostics*	*Clinical Dental Sciences*	*8*	*30*	*15*		*3*	105
96	*I_4_14*	*Principles of Diagnostics in Oral Medicine*	*Clinical Dental Sciences*	*8*	*30*	*15*		*3*	106
97	*I_4_15*	*Principles of Treatment of Oral Diseases and Adverse Drug Reactions*	*Clinical Dental Sciences*	*8*	*30*	*15*		*3*	107
98	*I_4_16*	*Autoimmune Diseases of the Oral Mucosa*	*Clinical Dental Sciences*	*8*	*30*	*15*		*3*	108
99	*I_4_17*	*Oral Mucosal Diseases in Immunocompromised Patients*	*Clinical Dental Sciences*	*8*	*30*	*15*		*3*	109
100	*I_4_18*	*Gerodontology*	*Clinical Dental Sciences*	*8*	*30*	*15*		*3*	110
101	ST20DEST	Pediatric Dentistry	Clinical Dental Sciences	9,10	60	90	60	11	111
102	ST20ORAL	Oral Surgery	Clinical Dental Sciences	9,10	60	90	60	10	112
103	ST20FSPR	Fixed Prosthodontics	Clinical Dental Sciences	9,10	45	180	60	12	113
104	ST20PAR2	Clinical Periodontology	Clinical Dental Sciences	9	30	45	45	10	114
105	ST20ENDO	Endodontics	Clinical Dental Sciences	9,10	30	135	60	11	115
106	*I_5_01*	*Root Canal Obturation - Obturation Techniques and Materials*	*Clinical Dental Sciences*	*10*	*15*	*15*	*15*	*3*	117
107	*I_5_02*	*Rotary Instruments in Endodontics*	*Clinical Dental Sciences*	*10*	*15*	*15*	*15*	*3*	118
108	*I_5_03*	*Treatment Planning for Chronic Periapical Inflammatory Lesions*	*Clinical Dental Sciences*	*10*	*15*	*15*	*15*	*3*	119
109	*I_5_04*	*Root Canal Chemical Treatment During Endodontic Therapy*	*Clinical Dental Sciences*	*10*	*15*	*15*	*15*	*3*	120
110	*I_5_05*	*Pain Management in Endodontics*	*Clinical Dental Sciences*	*10*	*15*	*15*	*15*	*3*	121
111	*I_5_06*	*Visualization Methods in Endodontics*	*Clinical Dental Sciences*	*10*	*15*	*15*	*15*	*3*	122
112	*I_5_07*	*Calcium Silicate Cements in Endodontics*	*Clinical Dental Sciences*	*10*	*15*	*15*	*15*	*3*	123
113	*I_5_08*	*Irrigation Systems and Endodontic Protocols*	*Clinical Dental Sciences*	*10*	*15*	*15*	*15*	*3*	124
114	*I_5_09*	*Application of Diode Lasers in Pediatric Dentistry*	*Clinical Dental Sciences*	*10*	*15*	*15*	*15*	*3*	125
115	*I_5_10*	*Dental Care for Children with Medical Risks*	*Clinical Dental Sciences*	*10*	*15*	*15*	*15*	*3*	126
116	*I_5_11*	*Dental Treatment of Patients with Special Care Needs*	*Clinical Dental Sciences*	*10*	*15*	*15*	*15*	*3*	127
117	*I_5_12*	*Child Abuse and Neglect*	*Clinical Dental Sciences*	*10*	*15*	*15*	*15*	*3*	128

118	*I_5_13*	*Chemoprophylaxis of Oral Diseases in Childhood*	*Clinical Dental Sciences*	*10*	*15*	*15*	*15*	*3*	129
119	*I_5_14*	*Complex Surgical Treatment of Jaw Cysts*	*Clinical Dental Sciences*	*10*	*15*	*15*	*15*	*3*	130
120	*I_5_15*	*Periapical Microsurgery*	*Clinical Dental Sciences*	*10*	*15*	*15*	*15*	*3*	131
121	*I_5_16*	*Radiographic Techniques in Oral Surgery*	*Clinical Dental Sciences*	*10*	*15*	*15*	*15*	*3*	132
122	*I_5_17*	*Complex Surgery of Impacted Teeth*	*Clinical Dental Sciences*	*10*	*15*	*15*	*15*	*3*	133
123	*I_5_18*	*Medically Compromised Patients in Oral Surgery*	*Clinical Dental Sciences*	*10*	*15*	*15*	*15*	*3*	134
124	*I_5_19*	*Complex Therapy of Dentogenic Infections*	*Clinical Dental Sciences*	*10*	*15*	*15*	*15*	*3*	135
125	*I_5_20*	*Pain Control Using Special Anesthesia Techniques in Oral Surgery*	*Clinical Dental Sciences*	*10*	*15*	*15*	*15*	*3*	136
126	*I_5_21*	*Biomaterials in Regenerative Periodontal Treatment*	*Clinical Dental Sciences*	*10*	*15*	*15*	*15*	*3*	137
127	*I_5_22*	*Periodontal-Restorative Interrelationships*	*Clinical Dental Sciences*	*10*	*15*	*15*	*15*	*3*	138
128	*I_5_23*	*Gingival Recessions*	*Clinical Dental Sciences*	*10*	*15*	*15*	*15*	*3*	139
129	*I_5_24*	*Tissue Engineering in Periodontology*	*Clinical Dental Sciences*	*10*	*15*	*15*	*15*	*3*	140
130	*I_5_25*	*Specific Forms of Fixed Dental Restorations*	*Clinical Dental Sciences*	*10*	*15*	*15*	*15*	*3*	141
131	*I_5_26*	*Esthetic Principles of Dental Restorations*	*Clinical Dental Sciences*	*10*	*15*	*15*	*15*	*3*	142
132	*I_5_27*	*Ceramic Systems in Prosthodontics*	*Clinical Dental Sciences*	*10*	*15*	*15*	*15*	*3*	143
133	*I_5_28*	*Zirconia in Prosthetic Dentistry*	*Clinical Dental Sciences*	*10*	*15*	*15*	*15*	*3*	144
134	*I_5_29*	*Orofacial Pain in Patients in Dental Prosthetics*	*Clinical Dental Sciences*	*10*	*15*	*15*	*15*	*3*	145
135	ST20MAKS	Maxillofacial Surgery	Clinical Dental Sciences	11,12	60	60		9	146
136	ST20ORLA	Otorhinolaryngology	Clinical Medical Sciences	11	15	30		5	147
137	ST20SUME	Forensic Medicine	Clinical Dental Sciences	12	30	15		5	148
138	ST20BLO1	Block: Restorative Dentistry	Clinical Dental Sciences	11,12	60	60	180	8	149
139	ST20BLO2	Block: Pedodontics	Clinical Dental Sciences	12	30	30	75	7	150
140	ST20IMPL	Implantology	Clinical Dental Sciences	11	30	30	15	7	151
141	ST20ORTO	Dentofacial Orthopedics	Clinical Dental Sciences	11,12	60	75	30	10	152
142	ST20ZARA	Thesis Defence	Clinical Dental Sciences	12			45	3	153
143	*I_6_01*	*Indirect Tooth Restorations*	*Clinical Dental Sciences*	*11*	*30*	*30*		*3*	155
144	*I_6_02*	*Treatment of Tooth Discoloration in the Esthetic Zone*	*Clinical Dental Sciences*	*11*	*30*	*30*		*3*	156
145	*I_6_03*	*Behavior Management in Pediatric Dentistry*	*Clinical Dental Sciences*	*11*	*30*	*30*		*3*	157
146	*I_6_04*	*Minimal Sedation in Pediatric Dentistry*	*Clinical Dental Sciences*	*11*	*30*	*30*		*3*	158
147	*I_6_05*	*Deontological Aspects of Dental Practice*	*Basic Dental Sciences*	*12*	*30*	*30*		*3*	159
148	*I_6_06*	*Endoscopic Operations of the Nose and Paranasal Sinuses*	*Clinical Medical Sciences*	*11*	*30*	*30*		*3*	160
149	*I_6_07*	*Clinical Assessment of the Sinonasal Diseases*	*Clinical Medical Sciences*	*11*	*30*	*30*		*3*	161
150	*I_6_08*	*Treatment of Head and Neck Malignant Tumors*	*Clinical Dental Sciences*	*12*	*30*	*30*		*3*	162
151	*I_6_09*	*Dental Treatment of Oncological Patients*	*Clinical Dental Sciences*	*12*	*30*	*30*		*3*	163
152	*I_6_10*	*Postoperative Treatments in Maxillofacial Surgery*	*Clinical Dental Sciences*	*11*	*30*	*30*		*3*	164
153	*I_6_11*	*Patients Preparation for Surgical Correction of Dentofacial Deformity*	*Clinical Dental Sciences*	*12*	*30*	*30*		*3*	165
154	*I_6_12*	*Surgery of the Face*	*Clinical Dental Sciences*	*12*	*30*	*30*		*3*	166

155	*I_6_13*	*Endoscopic Surgery of the Maxillary Sinus*	*Clinical Dental Sciences*	*11*	*30*	*30*		*3*	167
156	*I_6_14*	*Navigation Implantology*	*Clinical Dental Sciences*	*11*	*30*	*30*		*3*	168
157	*I_6_15*	*Principles of Regenerative Therapy*	*Clinical Dental Sciences*	*11*	*30*	*30*		*3*	169
158	*I_6_16*	*3D Digital Technologies in Orthodontics*	*Clinical Dental Sciences*	*12*	*30*	*30*		*3*	170
159	*I_6_17*	*Fixed Orthodontics*	*Clinical Dental Sciences*	*12*	*30*	*30*		*3*	171
160	*I_6_18*	*Orthodontic Management of Impacted Teeth*	*Clinical Dental Sciences*	*12*	*30*	*30*		*3*	172
161	*I_6_19*	*Lingual Orthodontics*	*Clinical Dental Sciences*	*12*	*30*	*30*		*3*	173
162	*I_6_20*	*Multidisciplinary Therapy in Orthodontics*	*Clinical Dental Sciences*	*12*	*30*	*30*		*3*	174
163	*I_6_21*	*Orthodontic Mini-implants*	*Clinical Dental Sciences*	*12*	*30*	*30*		*3*	175
164	*I_6_22*	*Presurgical Orthodontic Treatment*	*Clinical Dental Sciences*	*12*	*30*	*30*		*3*	176
165	*I_6_23*	*The use of CBCT in Orthodontics and Dentofacial Orthopedics*	*Clinical Dental Sciences*	*11*	*30*	*30*		*3*	177
166	*I_6_24*	*Up-To-Date Radiology In Dentistry*	*Basic Dental Sciences*	*11*	*30*	*30*		*3*	178
167	*I_6_25*	*Computerized Dentistry*	*Clinical Dental Sciences*	*11*	*30*	*30*		*3*	179
168	*I_6_26*	*Maxillofacial Prosthodontics*	*Clinical Dental Sciences*	*12*	*30*	*30*		*3*	180

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	C1
Level of studies: Second	
Course: Anatomy	
Course Leader(Name, middle letter, surname): Dinka S. Mucić	
Course status (compulsory/elective): Compulsory	
ECTS: 16	**Year of the study: I / 1st and 2nd semesters**
Entry requirements (passed exams from the previous years):	**Course code: ST20ANAT**
Objectives of the course: The learning objective of this course is to equip students with the practical and theoretical knowledge of the systematic and topographical human anatomy.	
Outcomes of the course: After attending this course and passing the exam, the students should demonstrate the knowledge of: -Morphology and topography of bone and soft tissue structures of upper and lower limbs -Structure and content of the thoracic cavity -Structure and content of the abdominal cavity -Structure and content of the pelvic cavity -Morphology and topography of the bones and joints of the head and neck -Blood vessels and the nerves of the head and neck -Structure of the oral cavity and its walls -Structure of the pharynx -Structure of the nose and paranasal sinuses -Structure of the larynx -Structure of the organs of sight, hearing, and balance -Morphology and topography of the central nervous system	
Contents of the course: Bones and soft tissue structures of the arm, leg, thorax, abdomen and pelvis. Bones, joints and soft tissue structures of the head and neck. The central nervous system (Medulla spinalis, encephalon).	
Recommended literature: - Moore KL. Clinically Oriented Anatomy. Williams &Wilkins,Baltimore-Tokyo, 1992. Pp. 1-875.	

Total number of classes of active teaching and learning:				
Lectures: 90	Practicals: 90	Other modes of teaching:	Research paper:	Professional practice/ independent learning:
Teaching and learning methods:				

Assessment (maximal number of points 100)			
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	3	Practical exam	20
Participation in practicals	27	Oral exam	40
Mid-term test (s)	10		
Seminars			
Other			

Table 5.2 Subject specification

Study Programme: Integrated Studies of Dental Medicine	**C2**
Level of studies: Second	
Course: General and Oral Histology and Embryology	
Course Leader (Name, middle letter, surname): Vesna Danilović	
Course status (compulsory/elective): Compulsory	
ECTS: 12	**Year of the study: I / 1st and 2nd semesters**
Entry requirements:	**Course code:ST20HIST**

Objectives of the course:
The aim of the course is to provide the students with the knowledge of the structural organization of cells, tissues and organs, including the basic principles of their integration into larger units. The students will also acquire the knowledge of their origin and development.

Outcomes of the course:
1. The student is capable of identifying and analysing all tissues and organs at a microscopic level.
2. The student recognizes embryonic tissues and stages of the development of all tissues, especially the head and neck tissues and organs. Students understand the basic developmental processes and mechanisms that lead to developmental anomalies.
3. The acquired knowledge enables the students to understand the normal function of cells, tissues and organs. The knowledge of embryology enables the students to understand the nature and mechanisms of developmental anomalies.

Contents of the course:
Histological organization and development of four basic tissue types: epithelial, connective, muscular, and nervous. Organs and systems of organs: circulatory, urinary, digestive, respiratory, endocrine, nervous, immune, liver and pancreas, skin and senses. Tissues and organs of the oral cavity: histological structure and development.

Recommended literature:
1. Anthony L. Mescher. Junqueira's Basic histology, 14th ed.McGraw-Hill Medical, 2016. pp. 35-365
2. Nanci A. Ten Cate's Oral histology, 9th ed. Elsevier, 2017. pp 42-344.
3. Carlson B. Human Embryology and Developmental Biology5th ed. Elsevier, 2013. Pp. 53-184.

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 60	Practicals: 60	Other modes of teaching: Mid-term test (s), seminars	Research paper:/	

Teaching and learning methods:

Assessment (maximum number of points: 100)

Pre-exam requirements	**40 points**	**Final exam**	**60 points**
Participation in lectures	3	Practical exam	20
Participation in practicals	27	Oral exam	40
Mid-term test (s)	10		
Other			

Table 5.2 Subject specification

Study Programme: Integrated Studies of Dental Medicine	C3
Level of studies: Second	
Course: General and Oral Biochemistry	
Course Leader (Name, middle letter, surname): Ivan S. Dožić	
Course status (compulsory/elective): Compulsory	
ECTS: 10	**Year of the study: I / 1st semester**
Entry requirements (passed exams from the previous years):/	**Course code: ST20BIOH**

Objectives of the course:
Students will acquire a basic knowledge of the chemical structure of biomolecules, synthesis and degradation of organic molecules, as well as the regulatory mechanisms of these processes. Students will acquire the knowledge of the biochemistry of saliva, dental tissues and dental biofilm.

Outcomes of the course:
After completing this course, the student should demonstrate:
- Basic knowledge of the biochemical characteristics of biomolecules
- Knowledge of enzymes
- Basic knowledge of the principles of metabolic processes in the human body (carbohydrates, lipids and proteins)
- Knowledge of biochemical organization and processes of certain tissues and organs, including their connections and interdependence
- Knowledge of hormones and their regulatory mechanisms
- Knowledge of the metabolism of water and bioelements
- Basic knowledge of clinical and diagnostic importance of determining certain biochemical parameters in body fluids and secretions (blood serum, saliva)
- Knowledge of the biochemical composition of dental tissues
- Knowledge of the biochemical composition and secretion of saliva
- Knowledge of the biochemistry of dental biofilm
- Knowledge of the biochemical basis of dental caries and periodontal disease.

Contents of the course:
Chemical bonds and structure of biomolecules, especially carbohydrates, lipids and proteins. Review of the basic principles of biochemistry and molecular biology. Particular emphasis will be placed on a broad understanding of the chemical processes occurring inside living systems in terms of their metabolism, as well as on the structure-function relationship of biologically important molecules. Additionally, important concepts such as bioenergetics, biological catalysis and metabolic pathways (metabolism of carbohydrates, lipids and proteins) as interacting regulatory systems will be included. This course will also provide students with a thorough understanding of the basic principles of biochemical processes related to oral health. These will be covered within the following 3 units: biochemistry of saliva, biochemistry of dental tissues, and biochemistry of dental biofilm.

Recommended literature:
1.Vasudevan DM, Sreekumari S, Vaidyanathan K. Textbook of Biochemistry for Dental Students. 3rd ed. New Delhi :Jaypee Brothers Medical Publishers (P) Ltd; 2017. pp. 7-53, 61-88, 110-163, 182-200, 250-259.
2. Lieberman M, Peet. Marks' basic medical biochemistry: a clinical approach. 5th ed. Philadelphia: Wolters Kluwer; 2018. pp. 868-901, 1549-1568.

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 60	Practicals: 30	Other modes of teaching:	Research paper:	

Teaching and learning methods:

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	3	Written Test	
Participation in practicals	27	Practical exam	10
Mid-term test (s)	10	Oral exam	50
Seminars			
Other			

Table 5.2 Subject specification

Study Programme: Integrated Studies of Dental Medicine	C4
Level of studies: Second	
Course: Biology and Human Genetics	
Course Leader (Name, middle letter, surname): Jelena M Milašin	
Course status (compulsory/elective): Compulsory	
ECTS: 10	**Year of the study: I / 1st semester**
Entry requirements (passed exams from the previous years):	**Course code: ST20GENE**

Objectives of the course:
To provide future dentists with the most relevant insights into the biology of the cell and introduce to them the process of inheritance at the molecular level, chromosomal level, individual and population levels.

Outcomes of the course:
After successfully completing the course, the student should be able to:
- understand the basic concepts of cytology, structure and function of major cellular organelles, and some important processes related to cell biology (intercellular communication and transport, cellular differentiation, aging and death, cell cycle control, types of cell division)
-understand the basics of molecular biology (nucleic acid types, replication, transcription, translation, control of gene expression)
-explain the mechanisms of mutagenesis and the consequences for human health, as well as the mechanisms of DNA repair
-explain the basic principles and rules of inheritance of monogenic and polygenic normal and pathological traits
-understand the basic concepts of cytogenetics, its medical significance and application in clinical practice
- explain the mechanisms of occurrence of numerical chromosome aberrations and the most common syndromes with their main features
-understand the mechanisms of structural chromosome aberrations occurrence and their phenotypic effects, i.e. their significance for humans and their offspring
-connect genetic changes to the process of tumorigenesis, i.e. to the multistage mechanism of normal cell transformation into malignant.

Contents of the course:
The student will be introduced to cell components, prokaryotic and eukaryotic cell structure, cell morphology, structure and function of cell organelles, cell transport, cell cycle and its control, cell divisions, cell senescence and death. Then, the student will be acquainted with the structure of DNA, its physico-chemical characteristics and biological function, eukaryotic gene organization, DNA replication, transcription, translation and regulation of gene expression, basic concepts of mutagenesis (gene mutations definition, classification, chemical and physical mutagenesis and mechanisms of DNA repair). The student will also be introduced to Mendelian and non-Mendelian inheritance (monogenic traits, autosomal dominant and recessive inheritance, X-linked dominant and recessive inheritance), genetic polymorphisms, linked genes, polygenic traits, multifactorial inheritance. Students will also acquire knowledge in the field of cytogenetics and karyotype analysis, main techniques applied in cytogenetics, numerical and structural chromosome aberrations and principal syndromes caused by chromosomal aberrations. Finally, the course also includes the basic principles of population genetics and oncogenetics.

Recommended literature:
Thompson and Thompson "Genetics in Medicine", W.B. Saunders, 2004.

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 45	Practicals: 30	Other modes of teaching:	Research paper:	

Teaching and learning methods:

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	3	Written Test	15
Participation in practicals	27	Practical exam	
Mid-term test (s)	10	Oral exam	45
Seminars			
Other			

Table 5.2 Subject specification

Study Program: Integrated Studies of Dental Medicine	C5
Level of studies: Second	
Course: English Language	
Course Leader (Name, middle letter, surname): Irena V. Aleksić-Hajduković	
Course status (compulsory/elective): Compulsory	
ECTS: 6	**Year of the study: I / 1st semester**
Entry requirements (passed exams from the previous years): /	**Course code: ST20ENGL**

Objectives of the course:
Students will acquire the basics of English for Medical Purposes (EMP) and English for Dental Purposes (EDP) while improving their reading, speaking, listening and writing competencies in order to enable them to use the English language to: communicate with patients and colleagues efficiently; take part in continuing professional development (CPD) programmes; skim and scan scholarly literature and electronic sources for relevant information.

Outcomes of the course:
After completing this course, the student should be able to:
- use the basic English terminology related to medicine and dental medicine;
- identify the morphological processes in terms of the basic word structure of medical/dental terms in English and apply them to acquire new complex terms;
- differentiate between professional English terms and their equivalent terms used by patients;
- read relevant publications critically and analytically;
- skim and scan scholarly literature and electronic sources, including audio-visual contents;
- plan, prepare and deliver oral presentations related to the fields of medicine and dental medicine;
- ask questions about personal data and symptoms, and give basic instructions when interacting with patients;
- communicate with colleagues about a range of topics related to medicine and dental medicine.

Contents of the course:
The implications of learning English as a lingua franca for medical professions; basic word structure of medical/dental terms; terminology related to the human body and body systems (musculoskeletal, cardiovascular, respiratory, digestive, and endocrine); medical education (general (dental) practitioners and specialists); medical equipment; basic chairside instruments; human dentition; prevention; introduction to dentist-patient communication; taking a history; most common oral diseases and conditions; most common ethical issues in dental medicine.

Recommended literature:
1. Chabner, D.E. The Language of Medicine.11th ed. St. Louis, Missouri: Elsevier; 2017. pp. 2-23, 34-54, 61-66, 140-149, 400-409, 460-465, 580-589, 750-760.
2. Dofka, C.M. Dental Terminology. Albany NY: Delmar Thompson Learning; 2013. pp. 1-19, 46-55, 61-69 75-87, 93-99, 126-133.
3. Evans,V., Dooley, J. & Caldwell, J. *Career Paths: Dentistry. Book 1.* Newbury (Royaume-Uni): Express Publishing; 2016. pp. 4-40.
4. Glendinning, E. & Howard, R. Professional English in Use: Medicine. Cambridge: Cambridge University Press; 2007. pp. 10-11, 18-19, 36-37, 40-41, 44-45, 52-53, 68-69, 102-109, 112-117.
Dictionaries:
Ireland, R. A Dictionary of Dentistry. New York: Oxford University Press; 2010. Стр. 1-416.

Total number of classes of active teaching:				Professional practice/ independent learning:
Lectures: 30	Practicals: 30	Other modes of teaching:	Research paper:	

Teaching methods: student-centred,interactive, and communicative

Assessment (maximum number of points 100)

Pre-exam requirements	**Total: 40 points**	**Final exam: 60 points**	
Participation in lectures	3	Written Test	60
Participation in practicals	27	Practical exam	
Mid-term test	5	Oral exam	
Oral presentation	5		

Elective Block 1
English for Academic Purposes
English for Dentistry (advanced course)
Histology Workshop: Tissues and Organs of the Orofacial System
Neurohistology
Mechanisms of Developmental Anomalies
Biology of Stem Cells
Mutagen Effects of Environmental Factors from Food, Water and Air
Molecular Biology Methods in Dental Medicine
Information Technologies in Dentistry
Basics of Biomechanics in Dentistry
Social Medicine and Epidemiology
Biochemistry of Bone Tissue
Medical Ecology
Nutrition and Oral Health
The Impact of Oral Health on the Quality of Life
Histological Techniques
Gene Therapy-Principles and Practice
Genetic Basis of Common Human Diseases
Viral Oncogenesis
Biochemical Characteristics of the Oral Pellicle
Ergonomy in Dentistry

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	1E1
Level of studies: Second	
Course:English for Academic Purposes	
Professor in charge (Name, middle letter, surname): Irena V. Aleksić-Hajduković	
Course status (compulsory/elective): Elective	
ECTS: 2	**Year of the study: I / 1st semester**
Entry requirements (passed exams from the previous years): /	**Course code: I_1_01**

Objectives of the course:
Enabling the students interested in scientific research to communicate in an academic environment and deliver oral and poster presentations at international (student) conferences. The students will also gain theoretical and practical knowledge of the structure of research papers and different modes that take part in meaning-making processes in order to create multimodal digital contents in the English language and present their research findings in an efficient manner.

Outcomes of the course:
After completing this course, the student should be able to:
- communicate in the global academic environment and fulfill academic tasks in the English language, which is in accordance with the internationalisation of Higher Education institutions and student mobility programs;
- understand and apply the theoretical frameworks and conventions of the academic discourse
- adhere to the lexical and syntactic features of the English language and create multimodal contents to complement digital presentations of their own research findings;
- critically and analytically read professional and scientific publications related to medicine and dental medicine;
- skim and scan relevant literature and attend international conferences in order to keep up to date with the innovations in the field, which is in accordance with the notion of lifelong learning;
- understand how to cite references and avoid plagiarism.

Contents of the course:
The global academic community recognises the English language as a *lingua franca*. Therefore, this course will provide the students with the fundamental conventions of the academic discourse and academic genres relevant for writing abstracts and research articles in English. The course will also include: lexical and syntactic features of the academic discourse; cohesion; critical and analytical reading; argumentation in speaking and writing; referencing styles; anti-plagiarism; various modes that contribute to meaning-making processes.

Recommended literature:

1. Aleksić-Hajduković, I. A Multimodal Approach to Teaching and Learning Medical Academic English: A Case Study. In: *Language for Specific Purposes and Professional Identity.*Vujović, A., Šipragić-Đokić, S. & Paprić, M. (Eds.) Belgrade: Foreign Language and Literature Association of Serbia, 2018. pp. 585-597.
2. Grussendorf, M. *English for Presentations*. Oxford: Oxford University Press. pp. 5-50.
3. Mauranen, A. , Hynninen, N., Ranta, E. English as the Academic Lingua Franca. In: *The Routledge Handbook of English for Academic Purposes.* Hyland, K., Shaw, P. Milton Park (Eds.); New York: Routledge. pp. 44-55.
4. Philpot, S., Curnick, L. Innovations in Health and Medicine. In *New Headway Academic Skills: Reading, Writing, and StudySkills (Level 3).* Soars, L. & Soars, J. (Eds.) Oxford: Oxford University Press, 2011. pp. 12-19.
5. Malmfors, B., Garnsworthy, P., Grossman, M. *Writing and Presenting Scientific Papers (2nd ed.).* Nottingham: Nottingham University Press, 2009. pp. 1- 17, 23-36, 79-86, 99-114, 121-127.

Total number of classes of active teaching:				Professional practice/ independent learning:
Lectures:30	Practicals:	Other modes of teaching:30	Research paper:	

Teaching methods:
Communicative and interactive learner-centred approach which implies working in pairs or small groups and promotes student cooperation to prepare and deliver poster presentations and oral presentations.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total: 40 points**	**Final exam: 60 points**	
Activities in lectures		Written defense of a project on a chosen topic: Written Test Academic writing (essay) Academic reading	 20 20 20
Seminars	20		
In-class assessments	20		

Table 5.2 Subject specification

Study Program: Integrated Studies of Dental Medicine				1E2
Level of studies: Second				
Course: English for Dentistry (advanced course)				
Professor in charge (Name, middle letter, surname): Irena V. Aleksić-Hajduković				
Course status (compulsory/elective): Elective				
ECTS: 2			**Year of the study: I / 2nd semester**	
Entry requirements (passed exams from the previous years): /			**Course code: I_1_02**	
Objectives of the course: The primary objectives of this course include enabling the students of dental medicine to communicate with patients efficiently and acquire English terminology related to dental medicine.				
Outcomes of the course: After completing this course, the student should be able to use the English language to: - take the patient's history; - give instructions to patients; - explain treatment procedures; - provide instructions related to further treatment; - understand and use key terms related to dental medicine; - understand and use politeness strategies when interacting with patients.				
Contents of the course: Dentist-patient communication in English, including relevant terminology – taking a history: personal data, present complaint(s), chronic diseases, family history; politeness strategies; describing treatment procedures related to anaesthesia, prescribing therapy, placing fillings and orthodontic appliances.				
Recommended literature: Dofka, C.M. *Dental Terminology*. Albany NY: Delmar Thomson Learning, 2013. pp. 1-17, 145-153, 157-158, 356-367. Evans,V., Dooley J. & Caldwell, J. *Career Paths: Dentistry (2nd ed).* Book 2. Express Publishing, 2016. pp. 4-40. Evans,V., Dooley J. & Caldwell, J. *Career Paths: Dentistry (2nd ed). Book 3.* Express Publishing, 2016. pp. 14-19, 22-28. Goldsmith, C., Slack ‑ Smith, L., Davies, G. Dentist ‑ patient communication in the multilingual dental setting. *Australian dental journal*, 2005, 50 (4). Стр. 235-241. Williams, K., Woolliams, M., Spiro, J. *Reflective Writing.* Basingstoke, New York: Palgrave Macmillan, 2012. pp. 1-22. Dictionaries: Ireland, R. *A Dictionary of Dentistry.* New York: Oxford University Press, 2010. pp. 1-416.				
Total number of classes of active teaching:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching: 30	Research paper:	
Teaching methods: student-centred, interactive and communicative				
Assessment (maximum number of points: 100)				
Pre-exam requirements	**Total: 40 points**	**Final exam: 60 points**		
Activities in lectures		Written defense of a project on a chosen topic: Written Test Portfolio		 30 30
Activities in practicals				
Mid-term tests				
Seminars	20			
In-class assessments	20			

Table 5.2 Subject specification

<table>
<tr><td colspan="3">Study Program: Integrated Studies of Dental Medicine</td><td colspan="3">1E3</td></tr>
<tr><td colspan="6">Level of studies: Second</td></tr>
<tr><td colspan="6">Course: Histology Workshop: Tissues and Organs of the Orofacial System</td></tr>
<tr><td colspan="6">Course Leader (Name, middle letter, surname): Vesna Z. Danilović</td></tr>
<tr><td colspan="6">Course status (compulsory/elective): Elective</td></tr>
<tr><td colspan="3">ECTS: 2</td><td colspan="3">Year of the study: I / 1st and 2nd semesters</td></tr>
<tr><td colspan="3">Entry requirements:</td><td colspan="3">Course code: I_1_03</td></tr>
<tr><td colspan="6">Objectives of the course:
The objective of the course is to enable students to acquire additional knowledge of the histological structure of cells, tissues and organs of the orofacial system, their origin and developmental processes, regenerative and reparative potential, including the changes related to aging.</td></tr>
<tr><td colspan="6">Outcomes of the course
1. Students acquire detailed knowledge of the structure, origin and development of orofacial tissues and organs.
2. The acquired knowledge is the basis for further study; it prepares the students for understanding the physiological, pathophysiological, and pathological changes in this region, as well as the biological basis of various therapeutic procedures.</td></tr>
<tr><td colspan="6">Contents of the course
The skeleton of neurocranium and viscerocranium: histological structure, specificities and developmental processes. Masticatory muscles: histological structure and development, proprioceptive sensibility.Cranial nerves: histological structure, development, specificities.
Oral mucosa: a dynamic barrier between the external environment and deeper tissues.
Epithelial homeostasis: mechanisms for maintaining the integrity of the oral epithelium.
Somatosensory innervation of oral mucosa. Glands of the oral cavity: histological structure and development. Mineralized tissues: histological structure and development.Protective reactions of dental pulp: role of odontoblasts. Protective mechanisms in a healthy periodontium.
Temporomandibular joint: histological structure and development. Regeneration, repair and remodeling of orofacial tissues. Changes in oral tissues related to aging.</td></tr>
<tr><td colspan="6">Recommended literature:
1. Nanci A. Ten Cate’s Oral histology, 9th ed. Elsevier, 2017. pp 42-344.
2. Carlson B. Human Embryology and Developmental Biology5th ed. Elsevier, 2013. Pp. 53-184.</td></tr>
<tr><td colspan="4">Total number of classes of active teaching and learning:60</td><td colspan="2" rowspan="2">Professional practice/ independent learning:</td></tr>
<tr><td>Lectures: 30</td><td>Practicals:</td><td>Other modes of teaching: 30</td><td colspan="2">Research paper:/</td></tr>
<tr><td colspan="6">Teaching and learning methods Classes are organized in a small group and are designed as an interactive discussion on a given topic.</td></tr>
<tr><td colspan="6">Assessment (maximum number of points: 100)</td></tr>
<tr><td colspan="2">Seminars</td><td>40 points</td><td colspan="2">Written defense of a project on a chosen topic</td><td>60 points</td></tr>
</table>

Table 5.2 Subject specification

<table>
<tr><td colspan="3">Study Program: Integrated Studies of Dental Medicine</td><td>1E4</td></tr>
<tr><td colspan="4">Level of course: second</td></tr>
<tr><td colspan="4">Course: Neurohistology</td></tr>
<tr><td colspan="4">Course Leader (Name, middle letter, surname): Sanja M Milutinović-Smiljanić</td></tr>
<tr><td colspan="4">Course status (compulsory/elective): Elective</td></tr>
<tr><td colspan="2">ECTS: 2</td><td colspan="2">Year of study: I / 2nd semester</td></tr>
<tr><td colspan="2">Entry requirements (passed exams from the previous years):</td><td colspan="2">Course code: I_1_04</td></tr>
<tr><td colspan="4">Objectives of the course: Expanding the knowledge of the principles of the organization of the cells, tissues and organs of the nervous system, as well as familiarizing students with the basics of their embryonic development.</td></tr>
<tr><td colspan="4">Outcomes of the course:
After completing the course, the student should be able to:
- Explain the basic principles of embryonic development and organization of the human nervous system
- Notice the interconnection of the structure and the function of the organs of the nervous system
- Describe the linkage of nervous tissue to other tissues and organs of the human body
- Apply acquired knowledge in further study, primarily in mastering the material in physiology and pathology.</td></tr>
<tr><td colspan="4">Content of the course: Neurohistological techniques and neurohistological preparations. General characteristics of the structural organization of neural tissue. The way of organizing neural tissue in organs and organ systems. Histological features of the central and peripheral nervous system. Ultrastructural characteristics of the nerve cells.The basic rules of connection of neural structures with their function and function disorders. General characteristics of embryological development of the nervous system. Special features of morphogenesis of nervous system organs.</td></tr>
<tr><td colspan="4">Recommended literature:
Mescher A.L. Junqueira's Basic Histology: Text & Atlas. Ed. 14th. McGraw-Hill Medical, 2016. Pp. 159-191.
Jackson P. Techniques in neuropathology. In Suvarna S.K., Layton C., Bancroft J.D. Bancroft's theory and practise of histological techniques. 8th Ed, Elsevier, 2018. Pp. 381-427.</td></tr>
<tr><td colspan="3">Total number of classes of active teaching and learning:</td><td rowspan="2">Professional practice – independent work:</td></tr>
<tr><td>Lectures:
30</td><td>Practicals:</td><td>Other modes of teaching :
30</td></tr>
<tr><td colspan="4">Teaching methods: Interactive learning, seminars.</td></tr>
<tr><td colspan="4">Evaluation methods (maximum number of points - 100)</td></tr>
<tr><td>Pre-exam compulsory activities</td><td>Total 40 points</td><td colspan="2">Final exam 60 points</td></tr>
<tr><td>Seminars</td><td>20</td><td>Written defense of a project on a chosen topic</td><td>60</td></tr>
<tr><td>Other (in-class activities)</td><td>20</td><td></td><td></td></tr>
</table>

Table 5.2 Subject specification

Study Program: Integrated Studies of Dental Medicine			**1E5**
Level of studies: second			
Course: Mechanisms of Developmental Anomalies			
Course Leader (Name, middle letter, surname): Sanja M. Milutinović-Smiljanić			
Course status (compulsory/elective): Elective			
ECTS: 2		**Year of study: I / 2nd semester**	
Entry requirements (passed exams from the previous years): /		**Course code: I_1_05**	
Objectives of the course: Expanding the student's knowledge of general principles of human development. Introducing students to the developmental characteristics of individual organs and organ systems. Acquiring knowledge of the mechanisms and forms of disorders of embryonic development of tissues and organs, including the influence of major teratogenic factors on development.			
Outcomes of the course: After completing the course, the student should be able to: - Describe and recognize the causes, mechanisms and developmental disorders of certain tissues and organs, which will facilitate the understanding of oral manifestations of various syndromes - Recognize and explain the causes of malformations and associated diseases in children and adults which are the subjects of learning in clinical classes.			
Content of the course: General characteristics of tissue and organ development. Developmental disorders in the pre-embryonic, embryonic and fetal periods. Teratogenic types and their impact on the development. Prenatal diagnostics. Disorders of the musculoskeletal, cardiovascular, nervous, lymphatic, endocrine, respiratory, digestive and urinary systems. Developmental disorders of the face and pharyngeal systems. Developmental abnormalities of the senses and skin.			
Recommended literature: Sadler T.W. Langman's Medical Embryology. 14th Ed. Wolters Kluwer, The Netherlands. 2018. Pp. 1-456.			
Total number of classes in active learning:			Professional practice / independent work:
Lectures: 30	Practicals:	Other modes of teaching : 30	
Teaching and learning methods: Interactive learning, seminars.			
Assessment (maximum number of points 100)			
Pre-exam compulsory activities	**Total 40 points**	**Final exam 60 points**	
Seminars	20	Written defense of a project on a chosen topic	60
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine				1E6
Level of studies: Second				
Course: Biology of Stem Cells				
Course Leader (Name, middle letter, surname): Jelena M Milašin				
Course status (compulsory/elective): Elective				
ECTS: 2			**Year of the study: I / 2nd semester**	
Entry requirements (passed exams from the previous years):			**Course code: I_1_06**	
Objectives of the course: Gaining the knowledge of stem cells, their origin, properties and renewal capacity, with particular emphasis on stem cells originating from tissues of the orofacial region.				
Outcomes of the course: After completing the course and passing the exam, the student should be able to: -Understand the complex notion of stem cells -Explain the principles of self-renewal and differentiation of stem cells -Describe various types of stem cells and recognize the differences between them, depending on their origin -Understand the importance of stem cells in regenerative medicine and dentistry				
Contents of the course: The student will be acquainted with the definition, types and classification of stem cells, their characteristics, basic functions and mechanisms of their regulation, main methods of stem cell isolation and establishment of primary cultures, advantages and disadvantages of different isolation methods; the student will also be acquainted with various methods of stem cell characterization and detection of changes occuring in the process of differentiation. In addition, the student will gain knowledge on the benefits and risks of stem cell therapy, as well as the current achievements in this field. Finally, a thorough insight into the perspective of stem cell administration in the treatment of orofacial diseases will be provided.				
Recommended literature: Maira S Oliveira, João B Barreto-Filho. Placental-derived stem cells: Culture, differentiation and challenges World J Stem Cells 2015 May 26; 7(4): 769-775. Patricia Flores-Guzmán, Verónica Fernández-Sánchez, Hector Mayani. Concise Review: Ex Vivo Expansion of Cord Blood-Derived Hematopoietic Stem and Progenitor Cells: Basic Principles, Experimental Approaches, and Impact in Regenerative Medicine. Stem Cells Translational Medicine 2013;2:830–838.				
Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals: 30	Other modes of teaching : 15	Research paper:	
Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.				
Assessment (maximum number of points: 100)				
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**		
Participation in lectures		Written defense of a project on a chosen topic	60	
Participation in practicals				
Mid-term test(s)				
Seminars	20			
Other	20			

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine			1E7	
Level of studies: second				
Mutagen Effects of Environmental Factors from Food, Water and Air				
Course Leader (Name, middle letter, surname): Marko K. Babic				
Course status (compulsory/elective): Elective				
ECTS: 2			**Year of the study: I / 2nd semester**	
Entry requirements (passed exams from the previous years):			**Course code: I_1_07**	
Objectives of the course: Gaining knowledge about different agents present in food, water and air which pollute the environment. Studying their harmful effects at the level of: organisms, cell and genome. Mutagen effects of polluting agents on genes involved in controlling cell cycle and their ability to transform normal cells into malignant. Origin of polluting agents possessing mutagenic characteristics and their relation to the degree of industrial development of the country. Protection against the harmful influence of polluting agents on humans and treatment of the people affected by these agents.				
Outcomes of the course: -Students should recognize different harmful agents which could be taken in through food, water and by breathing in the polluted air -Students will acquire the knowledge of the effects of polluting agents at the level of organism and at the cellular level -Students will gain knowledge of different cytological and molecular genetics techniques used for evaluating the degree of harmful genotoxic effects				
Contents of the course: Presence of aflatoxin in milk and its cancerogenic effect. Using nitrites for food conservation and their mutagenic influence on the genome. Harmful effects of air polluting agents: pm-2.5 and pm-10, aryl carbohydrates produced by motor vehicles. Toxic compounds in tobacco's smoke. Harmful effects of heavy metals from water. Evaluation of the degree of mutagenic effects of polluting agents by using the Comet test. Applying protection measures in order to prevent mutagenic effects of polluting agents in humans.				
Recommended literature: **1.** Emerys, elements of medical genetics: Peter D. Turnpenny Sian Ellard, Beograd 2009. **2.** Anderson D, Yu T-W, McGregor DB, 1998, Comet assay responses as indicators of carcinogenic exposure. Mutagenesis, 13,539-55.				
Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	
Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.				
Assessment (maximal number of points 100)				
Pre-exam compulsory activities		**Total 40 points**	**Final exam 60 points**	
Participation in lectures			Written defense of a project on a chosen topic	60
Participation in practicals				
Mid-term test(s)				
Seminars		20		
Other		20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	1E8
Level of studies: Second	
Course: Molecular Biology Methods in Dental Medicine	
Course Leader (Name, middle letter, surname): Branka M. Popovic	
Course status (compulsory/elective): Elective	
ECTS: 2	**Year of the study: I / 2nd semester**
Entry requirements (passed exams from the previous years):	**Course code: I_1_08**

Objectives of the course:
Acquiring knowledge of the practical application of basic molecular biology methods in the detection of biological markers relevant to dentistry.

Outcomes of the course:
After completing the course and passing the exam, the student should be able to:
- prepare solutions required for specific laboratory protocols
- apply the protocols for nucleic acid isolation from bilogical material
- prepare a PCR reaction
- analyze the results of a PCR reaction
- use *PubMed* database to read gene and protein sequences
- describe standard laboratory methods for detecting gene mutations
- understand the importance of contemporary trends in human genome analysis

Contents of the course:
The protocols for isolation of nucleic acid from blood, tissue, and buccal swabs; quantification of DNA, RNA, and proteins; preparing a PCR reaction; electrophoresis of nucleic acids and proteins; the methods for detecting gene mutations; analysis of gene expression; the methods for detection of proteins in biological samples; qualitative and quantitative estimation of microbiological status by PCR reaction; searching the *PubMed* database; analysis of the human genome – proceedings andclinical applications.

Recommended literature:
Turnpenny P., Ellard S. Emery's elements of medical genetics. Elsevier, 2017. page number 62-77.

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals	20		
Mid-term test(s)			
Seminars	20		
Other			

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	1E9
Level of studies: Second	
Course: Information Technologies in Dentistry	
Course Leader (Name, middle letter, surname): Milicic R Biljana	
Course status (compulsory/elective): Elective	
ECTS: 2	**Year of the study: I / 1st semester**
Entry requirements (passed exams from the previous years): /	**Course code: I_1_09**

Objectives of the course:
Acquisition of functional IT (information technologies) literacy required in the learning process during the studies, as well as its subsequent application in the professional work of future dentists. During the course, students acquire the knowledge and skills necessary for continuous learning, modern communication and presentation of their work throughout their professional careers.

Outcomes of the course:
After completing the class and passing the exam, the student should:
- Properly use modern information and communication technologies in the learning process in all dental disciplines, during and after graduation.
- Use commonly used software packages as part of general computer literacy: Word, Excel, Power Point.
- Adequately process photos.
- Select the right sources of information.
- Use various search methods and sources for searching medical information on the Internet and online databases.
- Use software tools to process information.

Contents of the course:
Information in dentistry, the strategy of searching for information in dentistry on the Internet. Presentation skills of the acquired information in dentistry. Practical work and use of software packages as part of general computer literacy, as well as software packages for storing the collected information. Oral presentation with the help of PowerPoint.

Recommended literature:
Shortliffe, E.H., Cimino, J.J. Biomedical Informatics: computer applications in health care and biomedicine. 4th Edition, Kindle Edition. Springer-Verlag London 2014 Pages: 3-66; 613-641; 675-693

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods: Introduction to the material with theoretical teaching.
Working in a small group in an electronic classroom, including interactive discussions, case presentations and independent solving of assigned case studies, seminars.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals	10		
Mid-term test(s)			
Seminars	20		
Other	10		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	1E10
Level of studies: Second	
Course: Basics of Biomechanics in Dentistry	
Course Leader (Name, middle letter, surname): Đorđe I Stratimirović	
Course status (compulsory/elective): Elective	
ECTS: 2	**Year of the study: I / 2nd semester**
Entry requirements (passed exams from the previous years):	**Course code: I_1_10**

Objectives of the course:
Gaining knowledge of mechanics and biomechanics required to understand the various branches of clinical dentistry. In-depth knowledge of mechanical concepts, sizes and models in solid and soft bodies and fluids. The emphasis is placed on the mechanical properties that are important for biological structures and processes that take place in biological systems. Developing skills for qualitative and quantitative approach for analyzing biomechanical problems.

Outcomes of the course:
After completing the course and passing the exam, the student should be able to:
- describe the basic concepts and models of mechanics
- differentiate between scalar and vector quantities
- understand and explain the basic quantities of rigid body mechanics
- understand the concept of leverage and solve simple problems
- describe the concepts and quantities of deformable body mechanics
- recognize and understand the basic equations of fluid mechanics.

Contents of the course:
Basic concepts and quantities of mechanics. Scalar and vector quantities. Point particle model, translational motion and Newton's laws, rigid body model, rotational motion and torque. Statics and equilibrium conditions. Levers and body parts as levers. Mechanics of deformation: stress, deformation, modulus of elasticity, strength, toughness, brittleness and stiffness of the material. Fluid mechanics, basic equations, viscosity. Laminar and turbulent flow.

Recommended literature:
1. Newman J. Physics of the Life Sciences. New York: Springer-Verlag; 2008. 1-245.
2. Halliday D, Resnick R, Walker J. Fundamentals of Physics Extended, 10th Edition, Wiley; 2013. Page: 1-123, 257-353, 386-412.
3. F. Tölgyesi, I. Derka, K. Módos, Physical Bases of Dental Material Science, Semmelweis University Budapest, 2012. 116-191.

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Oral defense of a project on a chosen topic	60
Participation in practicals			
Mid-term test(s)			
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine				1E11
Level of studies: Second				
Course: Social Medicine and Epidemiology				
Course Leader (Name, middle letter, surname): Svetlana B. Jovanović				
Course status (compulsory/elective): Elective				
ECTS: 2			**Year of the study: I / 1st semester**	
Entry requirements (passed exams from the previous years):			**Course code: I_1_11**	
Objectives of the course: Acquiring knowledge of the health care system and its functioning, including the methods and principles of preserving and improving the health of the population, assessing the health status of the population using the epidemiological method and the impact of social factors on the general and oral health of the population.				
Outcomes of the course: After completing the course and passing the exam, the student should be able to: - Identify risk factors for oral diseases and participate in oral health research - Outline the methods for assessing the quality of work in health care and measures for quality improvement - Explain the design of an epidemiological study and different approaches to prevention - Understand the importance of epidemiological approaches to disease, prevention and control of health disorders - Implement health education programs in dental health care while engaging in team work				
Contents of the course: Definition, development and tasks of social medicine and public health; risk factors, definition of health and disease; health assessment, general and oral health indicators and data sources; modern health care and levels of prevention; health care systems; health and oral health policies; quality of health care and patient safety; epidemiological observation and research, types of epidemiological studies; epidemic outbreak and prevention measures; epidemiological studies of oral diseases; oral diseases as social medical diseases; oral health promotion and health education.				
Recommended literature: 1. P. Dovijanić, M. Janjanin, I. Gajić, V. Radonjić, S. Jovanović-Radivojević. Basics of public health. Faculty of Stomatology, Belgrade, 2002. pp. 13-48, 81-148, 225-255, 280-285. 2. Katz DL, Wild D, Elmore JG, Lucan SC. Jekel's Epidemiology, Biostatistics, Preventive Medicine, and Public Health, 4th Edition. Saunders, Elsevier Inc. Philadelphia, PA. 2013. pp. 24-36, 291-339.				
Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	
Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.				

Assessment (maximum number of points: 100)			
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals			
Mid-term test(s)			
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine				1E12
Level of studies: Second				
Course: Biochemistry of Bone Tissue				
Course Leader (Name, middle letter, surname): Ivan S. Dožić				
Course status (compulsory/elective): Elective				
ECTS: 2			**Year of the study: I / 2nd semester**	
Entry requirements (passed exams from the previous years):			**Course code: I_1_12**	
Objectives of the course: Students will acquire a basic knowledge of the biochemical structure of bone tissues, inorganic and organic contents, collagen and non-collagen proteins, metabolic activity of bone tissue, and regulation of bone cell metabolism.				
Outcomes of the course: After completing the course, the students should be able to understand and explain: - the biochemical composition of bone tissues - the structure of hydroxyapatite (an inorganic component of the bone) - types of bone tissue proteins and their role - basic metabolic processes in bone cells and their regulation - biochemical processes in order to recognize bone resorption and bone formation markers				
Contents of the course: Bone cells, biochemical composition of the extracellular matrix; organic component of bone, collagen synthesis and structure, biochemical characteristics of non-collagen bone proteins, structure of hydroxyapatite, the importance of metabolic processes in bone cells, metabolism of glucose, amino acids and fatty acids in bone cells, regulation of metabolic processes.				
Recommended literature: 1. Levine, M . Topics in Dental Biochemistry. Springer-Verlag, Berlin Heidelberg, 2011. pp. 29-40;129-143. 2. Omelyanenko N, Slutsky L, Mironov S. Connective Tissue: Histophysiology, Biochemistry, Molecular Biology. CRC Press Taylor & Francis Group, 2014. pp.. 80-132;342-386.				
Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	
Teaching and learning methods: seminars, interactive discussions, and analyses				
Assessment (maximum number of points: 100)				
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**		
Participation in lectures		Written defense of a project on a chosen topic	60	
Participation in practicals				
Mid-term test(s)				
Seminars	40			
Other				

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine				1E13
Level of studies: Second				
Course: Medical Ecology				
Course Leader (Name, middle letter, surname): Svetlana B. Jovanović				
Course status (compulsory/elective): Elective				
ECTS: 2			**Year of the study: I / 1st semester**	
Entry requirements (passed exams from the previous years):			**Course code: I_1_13**	
Objectives of the course: Acquiring knowledge of the basics of medical ecology and environmental and occupational health impacts on general and oral health.				
Outcomes of the course: After completing the course and passing the exam, the student should be able to: - Recognize environmental and occupational risk factors for general and oral health - Identify the role of physical, chemical and biological environmental pollutants in the emergence of oral diseases - Implement integrated environmental prevention programs for oral diseases				
Contents of the course: Definition, history and development of medical ecology as a science and practice; environmental risk factors, type, origin, traits, impact on human health; air and health, global effects of air pollution; water and its impact on general and oral health; soil and its impact on general and oral health; medical / dental waste, medical waste management; the ecosphere and contamination of foods; housing hygiene.				
Recommended literature: 1. P. Dovijanić, M. Janjanin, I. Gajić,V. Radonjić, S. Jovanović-Radivojević. Basics of public health. Faculty of Stomatology, Belgrade, 2002. pp. 53-63, 163-186, 280-285. 2. Manuel C. Molles JR, Anna A. Sher. Ecology: concepts and applications. Eighth edition. New York, NY: MC Graw-Hill Education, 2019. pp. 196-253, 443-488. 3. Adams S, Lin J, Brown D, Shriver CD, Zhu K.Ultraviolet Radiation Exposure and the Incidence of Oral, Pharyngeal and Cervical Cancer and Melanoma: An Analysis of the SEER Data. Anticancer Res. 36(1):233-7, 2016.				
Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	
Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.				
Assessment (maximum number of points: 100)				
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**		
Participation in lectures		Written defense of a project on a chosen topic	60	
Participation in practicals				
Mid-term test(s)				
Seminars	20			
Other	20			

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	1E14
Level of studies: Second	
Course: Nutrition and Oral Health	
Course Leader (Name, middle letter, surname): Svetlana B. Jovanović	
Course status (compulsory/elective): Elective	
ECTS: 2	**Year of the study: I / 1st semester**
Entry requirements (passed exams from the previous years):	**Course code: I_1_14**

Objectives of the course:
Acquiring knowledge of the basics of medical dietetics and the possibilities of prevention and therapy in the clinical practice of nutritional disorders affecting oral health.

Outcomes of the course:
After completing the course and passing the exam, the student should be able to:
- Identify nutritional risk factors for general and oral health
- Identify the role of nutrients in the onset of oral diseases
- Analyze the diet and nutritional status of its patients
- Provide recommendations for proper nutrition and diet therapy for patients

Contents of the course:
Nutrients (proteins, fats, carbohydrates) and their role in the body; vitamins and minerals, impact on general and oral health; recommendations for proper energy and nutrient intake; eating disorders, obesity, anorexia, bulimia and effects on oral health; organic diseases and nutrition, impact on oral health; recommendations for proper nutrition; daily meal planning; the pyramid of nutrition, types and uses.

Recommended literature:
1. P. Dovijanić, M. Janjanin, I. Gajić,V. Radonjić, S. Jovanović-Radivojević. Basics of public health. Faculty of Stomatology, Belgrade, 2002. pp. 187-220, 277-284.
2. Katz DL, Friedman RSC, et al. Nutrition in Clinical Practice, 3rd Edition. Lippincott Williams & Wilkins / Wolters Kluwer. Philadelphia, PA. 2014. pp. 48-77, 123-147.
3. Moynihan P, Petersen PE. Diet, nutrition and the prevention of dental diseases. Public Health Nutr. 7(1A):201-26, 2004.

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals			
Mid-term test(s)			
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine				1E15
Level of studies: Second				
Course: The Impact of Oral Health on the Quality of Life				
Course Leader (Name, middle letter, surname): Svetlana B. Jovanović				
Course status (compulsory/elective): Elective				
ECTS: 2			**Year of the study: I / 2nd semester**	
Entry requirements (passed exams from the previous years):			**Course code: I_1_15**	
Objectives of the course: Acquiring knowledge of the concepts of quality of life associated with general and oral health and measuring the quality of life in relation to oral health, using various standardized questionnaires in at-risk population groups.				
Outcomes of the course: After completing the course and passing the exam, the student should be able to: - Describe the concept of quality of life in relation to general and oral health - Understand the measurement of quality of life in terms of oral health - Apply verified questionnaires with respect to oral health - Analyze different types of verified questionnaires				
Contents of the course: The concept and definition of quality of life in relation to general and oral health; the concept of quality of life, Scandinavian and American; the importance and impact of quality of life research on general and oral health; social demographic predictors of quality of life in patients with oral diseases; measuring quality of life from an oral health perspective; differences between clinical indicators and standardized questionnaires; data relevant to standardized questionnaires; type and structure of verified questionnaires; application of verified questionnaires in at-risk population groups.				
Recommended literature: 1. Katz DL, Wild D, Elmore JG, Lucan SC. Jekel's Epidemiology, Biostatistics, Preventive Medicine, and Public Health, 4th Edition. Saunders, Elsevier Inc. Philadelphia, PA. 2013. pp. 145-167, 212-231. 2. Locker D. Concepts of oral health, disease and the quality of life. In: Slade GD, editor. Measuring oral health and quality of life. Chapel Hill: University of North Carolina, Dental Ecology, 1997. pp. 11-23. 3. McDowell I. General health status and quality of life: Measuring Health, New York: Oxford University Press, 2006. pp. 520-554.				
Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	
Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.				
Assessment (maximum number of points: 100)				
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**		
Participation in lectures		Written defense of a project on a chosen topic	60	
Participation in practicals				
Mid-term test(s)				
Seminars	20			
Other	20			

Table 5.2 Subject specification

<table>
<tr><td colspan="4">Study Programme: Integrated studies of stomatology 1E16</td></tr>
<tr><td colspan="4">Level of course: second</td></tr>
<tr><td colspan="4">Course: Histological Techniques</td></tr>
<tr><td colspan="4">Course Leader (Name, middle letter, surname): Sanja M. Milutinović-Smiljanić</td></tr>
<tr><td colspan="4">Course status (compulsory/elective): Elective</td></tr>
<tr><td colspan="2">ECTS: 2</td><td colspan="2">Year of study: I / 1st semester</td></tr>
<tr><td colspan="2">Entry requirments (passed exams from the previous years): /</td><td colspan="2">Course code: I_1_16</td></tr>
<tr><td colspan="4">Objectives of the course: This course will provide students with the theoretical knowledge of the main histological techniques. The acquisition of theoretical knowledge of the basic techniques applied in histology. The acquired knowledge will contribute to a better understanding of morphological sciences, particularly histology and embryology.</td></tr>
<tr><td colspan="4">Outcomes of the course:
After completing the course, the student should be able to:
- Recognize and describe the types of microscopy
- Describe tissue handling and sectioning for microscopy
- Demonstrate knowledge of tissue staining techniques using different types of stain according to the tissue type
- Describe and interpret histological images.</td></tr>
<tr><td colspan="4">Content of the course: History of the microscope. Microscope types. Solid and soft tissue preparation methods. Tissue processing for light microscopy. Routine staining of histological preparations. Special staining methods. Tissue processing for electron microscopy. Histochemistry. Immunohistochemistry. Autoradiography. Interpretation of histological preparations.</td></tr>
<tr><td colspan="4">Recommended literature:
Mescher A. Junqueira's Basic Histology: Text and Atlas, 15th Ed (International edition), McGraw Hill, 2018. Pp. 1-17.
Gartner L.P., Hiatt J.L.. Introduction to histology and basic histological techniques. In Gartner LP, Hiatt JLColor textbook of histology. 3rd Ed. Saunders Elsevier, Philadelphia, 2007. Pp. 1-11.
Additional literature:
Suvarna S.K., Layton C., Bancroft J.D. Bancroft's theory and practise of histological techniques. 8th Ed, Elsevier, 2018. Pp. 1-672.</td></tr>
<tr><td colspan="3">Number of active teaching hours:</td><td rowspan="2">Other classes – professional practice – independent work:</td></tr>
<tr><td>Lectures:
30</td><td>Practicals:</td><td>Other modes of teaching :
30</td></tr>
<tr><td colspan="4">Teaching and learning methods: Interactive learning, seminars.</td></tr>
<tr><td colspan="4">Assessment (maximum number of points - 100)</td></tr>
<tr><td>Pre-exam compulsory activities</td><td>Total 40 points</td><td colspan="2">Final exam 60 points</td></tr>
<tr><td>Seminars</td><td>20</td><td>Written defense of a project on a chosen topic</td><td>60</td></tr>
<tr><td>Other</td><td>20</td><td></td><td></td></tr>
</table>

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	1E17
Level of studies: Second	
Course: Gene Therapy-Principles and Practice	
Course Leader (Name, middle letter, surname): Jelena M Milašin	
Course status (compulsory/elective): Elective	
ECTS: 2	**Year of the study: I / 2nd semester**
Entry requirements (passed exams from the previous years):	**Course code: I_1_17**

Objectives of the course:
Acquiring knowledge about the basic concepts and principles of gene therapy as one of the methods of the future when it comes to the treatment of human hereditary diseases, the approaches used for replacing defective genes with normal ones, i.e. methods of transferring exogenous nucleic acids to altered cells, the promises and the limitations of gene therapy.

Outcomes of the course:
After completing the course and passing the exam, the student should be able to:
- Explain the essence of gene therapy
- Understand the main mechanisms of action of the "therapeutic gene" in cells with defective genetic material
- Describe the various methods of exogenous nucleic acids transfer into cells and tissues of a person with a genetic disease
- Understand the advantages and disadvantages of gene therapy
- Consider the possibility of gene therapy application in the treatment of diseases of the maxillofacial region

Contents of the course:
The student will be acquainted with the definition of gene therapy, criteria for selection of diseases suitable for treatment with gene therapy, gene therapy strategies, *in vivo* and *ex vivo* transfer of genetic material and basic principles of gene transfer, the main methods of viral and non-viral nucleic acid insertion into diseased cells, the advantages and disadvantages of both forms of gene transfer. The student will also become familiar with the risks of this type of therapy as well as the currently greatest achievements in the field. Finally, the student will learn about the prospects of applying gene therapy in the treatment of various diseases of the maxillofacial region, from large bone defects to oral cancer.

Recommended literature:
Xiang Gao, Keun-Sik Kim and Dexi Liu 1Nonviral Gene Delivery: What We Know and What Is Next. The AAPS Journal 2007; 9 (1) Article 9 (http://www.aapsj.org).
S M Selkirk. Gene therapy in clinical medicine Postgrad Med J 2004;80:560–570. doi: 10.1136/pgmj.2003.017764

Total number of classes of active teaching and learning: 30				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals			
Mid-term test(s)			
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	1E18
Level of studies: Second	
Course: Genetic Basis of Common Human Diseases	
Course Leader (Name, middle letter, surname): Branka M. Popovic	
Course status (compulsory/elective): Elective	
ECTS: 2	**Year of the study: I / 2nd semester**
Entry requirements (passed exams from the previous years):	**Course code: I_1_18**

Objectives of the course:
Acquiring knowledge about the role of specific hereditary and environmental factors in determining the phenotype of multifactorial traits.

Outcomes of the course:
After completing the course and passing the exam, the student should be able to:
- describe the types of genetic markers that could be related with a certain diseases
- explain the significance of environmental factors in modifying the phenotype of multifactorial traits
- describe the mechanisms for determining genetic susceptibility to the most common diseases
- relate etiological factors with an increased risk for appearance of common human diseases
- explain the importance of detecting genetic and environmental factors at an early stage in order to reduce the risk of disease

Contents of the course:
Genetic susceptibility to common diseases; the types and mechanisms of genetic susceptibility; approaches to proving genetic susceptibility - the liability/threshold model; types of multifactorial inheritance; determining the influence of etiological factors in ordering the multifactorial disorders; disease models for multifactorial inheritance - identification of risk factors for *diabetes melitus*; identification of risk factors for cardiovascular diseases; identification of risk factors for neurodegenerative diseases.

Recommended literature:
Turnpenny P., Ellard S. Emery's elements of medical genetics. Elsevier. 2017. pp. 142-155.

Total number of classes of active teaching and learning: 30				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals			
Mid-term test(s)			
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	1E19
Level of studies: second	
Course: Viral Oncogenesis	
Course Leader (Name, middle letter, surname): Marko K. Babic	
Course status (compulsory/elective): Elective	
ECTS: 2	**Year of the study: I / 2nd semester**
Entry requirements (passed exams from the previous years):	**Course code: I_1_19**

Objectives of the course: Introducing students to different types of DNA and RNA viruses that have the ability to transform normal cells into malignant. Distinguishing the ways of their transmission and gaining insights into their life cycle in the infected cells. Analyzing the possible effects of viral genome insertion into human DNA and different molecular mechanisms by which uncontrolled proliferation of infected cells is induced. Association between some infectious diseases caused by viruses and tumor origin. Treatment of diseased patients and prevention of malignant transformation**.**

Outcomes of the course:
At the end of the course, the student:
- should recognize diseases caused by viruses possessing oncogenetic potential.
- acquire knowledge of the molecular mechanisms by which DNA and RNA viruses transform normal cells into malignant cells

Contents of the course:
Characteristics of DNA and RNA viruses influencing different types of tumors. Replication of nucleic acid in DNA and RNA viruses. Insertion of viral genome in the DNA of human cells. Distinguishing mechanisms by which viral insertion alters the activity of the genes involved in the controlling cell cycle. Specificities and therapy of tumors caused by viruses.

Recommended literature:

1. Murray P., Rosenthal K.: Medical Microbiology, 2005.Elsevier
2. Reinhard N., Kurth N. (2010): Retroviruses: Molecular biology, genomics and pathogenesis. Horizon Scientific
3. Ryu W (2017). Molecular Virology of Human Pathogenic Viruses. Academic Press. pp. 247–260. ISBN 978-0-12-800838-6

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching: 30	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximal number of points 100)

Pre-exam compulsory activities	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals			
Mid-term test(s)			
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	1E20
Level of studies: Second	
Course: Biochemical Characteristics of the Oral Pellicle	
Course Leader (Name, middle letter, surname): Ivan S. Dožić	
Course status (compulsory/elective): Elective	
ECTS: 2	**Year of the study: I / 2nd semester**
Entry requirements (passed exams from the previous years):	**Course code: I_1_20**

Objectives of the course:
Students will acquire a basic knowledge of the biochemical composition of the oral pellicle, adsorption mechanisms of specific salivary biomolecules and proteins on oral tissues, and understand the functions of the mucosal and dental pellicles.

Outcomes of the course:
After completing this course the student should demonstrate knowledge and understanding of:
- the biochemical composition of the tooth pellicle
- adsorption mechanisms of proteins, glycoproteins, lipids, carbohydrates from saliva on the surface of tooth enamel
- the biochemical composition of the mucosal pellicle
- adsorption of saliva glycoproteins (mucin) on the oral mucosa
- the interaction of salivary mucins with other biomolecules and the formation of heterotypic complexes in the oral mucosa
- the protective role of the pellicle in the oral cavity

Contents of the course:
The definition of the acquired pellicle in the oral cavity; the biochemical composition of the tooth pellicle; ionic interactions between saliva biomolecules and the surface of the tooth enamel; the formation of interconnections between organic molecules; the role of enzymes in pellicle composition; the biochemical composition of the mucosal pellicle; indirect and direct interactions of salivary mucins with epithelial cells of the oral mucosa; the interaction of salivary mucins with other biomolecules; the functions of dental and mucosal pellicles.

Recommended literature:

Michael Edgar, Colin Dawes , Denis O'Mullane. Saliva and oral health. Published by Stephen Hancocks Limited, 2015. pp. 97-134.

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods seminars, interactive discussions, and analyses

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals			
Mid-term test(s)			
Seminars	40		
Other			

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	1E21
Level of studies: Second	
Course:Ergonomy in Dentistry	
Course Leader (Name, middle letter, surname): Srđan D Poštić	
Course status (compulsory/elective): Elective	
ECTS: 2	**Year of the study: I / 1st semester**
Entry requirements (passed exams from the previous years):	**Course code: I_1_21**

Objectives of the course:
Introducing students to the organization of work and the layout of work items, equipment and materials in the dental office from an ergonomic point of view.

Outcomes of the course:
After completing the course, the student is trained to rationally use the work space in the dental office.

Contents of the course:
Definition and importance of ergonomics in dentistry; general ergonomic factors and principles in the work environment - temperature, pressure, humidity, noise, vibration; concepts of ergonomic landscaping in the dental office; ergonomics of the work of the dentist-dentist in the dental office; ergonomic forms - design of therapeutic chairs; concepts of ergonomic arrangement of the work space in the wider and narrower environment of the dental office; concepts of ergonomic approach in group work with support staff - with a dental nurse and with a dental technician; anatomical and physiological aspects of the proper working position of the therapist, patient and nurse; design of dental equipment and work instruments and impact on the locomotor system; ergonomics in transportation of work to the dental office; occupational diseases and an ergonomic approach to preventing occupational diseases; ergonomics in the selection and use of dental materials.

Recommended literature:

1. Valachi B. Practice Dentistry Pain-Free: Evidence-based Ergonomic Strategies to Prevent Pain and Extend Your Career.
   Portland, OR: Posturedontics Press; 2008. pp. 21-179.
2. Murphy DC. Ergonomics and the dental care worker. Washington, D.C.: American Public Health Association; 1998. pp.
   50-325.

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals			
Mid-term test(s)			
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study Programme: Integrated Studies of Dental Medicine	C6
Level of studies: second	
Course: General and Oral Physiology	
Course Leader (Name, middle letter, surname): Elena S. Krsljak	
Course status (compulsory/elective): compulsory	
ECTS: 13	**Year of the study: II / 3rd and 4thsemesters**
Entry requirements (passed exams from the previous years):	**Course code: ST20FIZL**

Objectives of the course:
To enable the students to understand molecular, cellular and organ physiology, oral physiology and integrative human physiology; with special emphasis on the mechanisms, regulation and feedback control which monitor and regulate life processes and functional balance-homeostasis.

Outcome of the course:
After successfully completing the course, the student should:
- possess knowledge and understanding of the mechanisms and modes of transport through the cell membrane
- possess knowledge and understanding of the structures and physiological functions of the system of the human organism and the mechanisms of maintaining the functional balance, with special reference to the orofacial region
- possess knowledge and understanding of the mechanisms and controls of secretion of saliva and its composition
- possess knowledge and understanding of the physiological functions of the components of the masticatory system
- Has knowledge and understanding of mechanisms of orofacial sensory transmission, sensory function and the mechanisms of maintaining oral homeostasis.

Content of the course:
Indroduction to Physiology, General Physiology. Membrane Physiology, Nerve, Muscle. The Heart. The Circulation. The Body Fluids and Kidneys. Blood cells, Immunity and Blood Clotting. Respiration. The nervous System. General Principles of Sensor Physiology. Motor and Integrative Neurophysiology. Gastrointestinal Physiology. Endocrinology. Oral Physiology. Basic properties of the physical mechanisms of mechanics and statics, fluid flows, membrane transport and electrical properties**.**

Recommended literature:
Arthur C.Gayton, John E.Hall.Textbook of Medical Physiology, thirteenth edition, Elsevier Science 2015. (pages: 3-24, 47-139, 169-271, 283- 285, 305-405, 409-422, 445-492, 497-549, 577-635, 695-843, 881-887, 925-960, 965-978, 983-993, 1001-1013, 1021-1033, 1037-1051).
Jonathan D. Kibble, Colby R.Halsey.Medical Physiology,McGraw-Hill Companies 2009.(pages: 1-57, 83-370)
Newman J. Physics of the Life Sciences. New York: Springer-Verlag; 2008. Page: 139-430, 477-562.
Halliday D, Resnick R, Walker J. Fundamentals of Physics Extended, 10th Edition, Wiley; 2013. Page: 95-346, 386-513, 745-802, 903-936, 10101-1046.

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 120	Practicals: 60	Other modes of teaching:	Research paper:	

Teaching and learning methods:

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	3	Written Test	10
Participation in practicals	27	Practical exam	
Mid-term test (s)	10	Oral exam	50
Seminars			
Other			

Table 5.2 Subject specification

Study Programme: Integrated Studies of Dental Medicine	C7
Level of studies: Second	
Course: General and Oral Pathology	
Course Leader (Name, middle letter, surname): Tepavčević B. Zvezdana	
Course status (compulsory/elective): Compulsory	
ECTS: 10	**Year of the study: II / 3rd and 4th semesters**
Entry requirements (passed exams from the previous years):	**Course code: ST20PATO**

Objectives of the course:
To gain the knowledge of morphological changes, i.e. of the structural damage to cells, tissues and organs and enable students to relate them to the causes, mechanisms, and consequences of their development, which is an important prerequisite for understanding the essence of pathological processes and, consequently, human diseases.

Outcomes of the course:
After successfully completing the course, the student should:
- Demonstrate knowledge and understanding of basic pathological processes related to adaptive, vascular and inflammatory responses in the body
- Demonstrate the knowledge and competence required for relating significant pathological conditions and the impact of dental interventions on them (endocarditis, myocarditis, diabetes, hepatitis)
- Demonstrate knowledge and understanding of the underlying pathological processes in the oral cavity
- Demonstrate the knowledge and competence required for recognizing and diagnose oral cystic changes
- Possess knowledge and understand the essence of pathological processes underlying human diseases, particularly those affecting the oral cavity
- Have the knowledge and competence required for attending and mastering all clinical subjects.

Contents of the course:
Introduction to Pathology (definition, importance, methods). Adaptive reactions. Changes in the structure of tissues and cells. Damage and death of cells. Necrosis and apoptosis. Disturbances of metabolism of pigments. Disturbances in body liquid contents. Disturbances in blood circulation. Inflammation. Regeneration processes. Neoplasma – tumors. Cardiovascular system. Respiratory system. Diseases of the digestive system Diseases of the urinary system. Diseases of the endocrine system. Disease of the central nervous system.
Introduction to Oral pathology. Cysts of the orofacial region. Diseases of salivary glands. Odontogenic tumors. Disease of haematopoetic apparatus. Diseases of bones and joints.
Diseases of skin and oral mucosa.

Recommended literature:
1. Cumar, Cortran, Robbins – Pathologic basis of diseases, 2009. pp:3-103; 165-210; 325-394; 453-542; 591-634; 719-754; 789-851
2. J.V.Soames and J.C.Southam – Oral pathology, Oxford Medical University,2002, pp:2-23; 25-35; 107-133; 163-209; 213-234; 389-430; 438-489; 534-582; 590-637

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 60	Practicals: 45	Other modes of teaching:	Research paper:	

Teaching and learning methods:

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	3	Written Test	
Participation in practicals	27	Practical exam	10
Mid-term test (s)	10	Oral exam	50
Seminars			
Other			

Table 5.2 Subject specification

Study Programme: Integrated Studies of Dental Medicine	C8
Level of studies: Second	
Course: Preventive Dentistry	
Course Leader (Name, middle letter, surname): Zoran T. Mandinić Zoran R. Vulicevic, Mirjana D. Ivanovic, Dejan Lj. Markovic, Vanja V. Petrovic, Jelena C. Mandic, Olivera M. Jovicic, Ivana S. Radovic, Tamara O. Peric, Zoran T. Mandinic	
Course status (compulsory/elective): Compulsory	
ECTS: 9	**Year of the study: II / 3rd semester**
Entry requirements (passed exams from the previous years): /	**Course code: ST20PREV**
Objectives of the course: To enable the students to acquire new knowledge in the field of etiopathogenesis, prevention and prophylaxis of oral diseases, as well as promotion of oral health, and the role and responsibilities of the dentist in the oral health of an individual and the community.	
Outcomes of the course: After completing this course, the student should: Know the etiology of oral diseases, Know the risk factors for the onset and the ability to diagnose oral diseases, Provide advice on controlling the risk factors for oral diseases, analyze the diet and provide advice on the maintenance of oral health, Know and apply the methodology of communication, motivation and teaching in dental health education work, Know and implement methods of prophylaxis by applying modern means for remineralization of hard dental tissues, Know the methods of minimally invasive karyology, Know and apply prophylactic methods in the prevention of periodontal diseases (practices the techniques of professional removal of soft deposits and supragingival concurrences), Know and apply methods of dental caries prophylaxis (fissures sealant, topical application of highly concentrated fluorides, chemoprophylaxis), Know and implement prophylactic measures in restorative dentistry to ensure the preservation of oral health and the durability of dental reimbursements for high-risk patients with fixed orthodontic appliances, restorations, fixed prosthetic restorations and implants, Know the principles of prevention of oral diseases of persons with special needs, medical risks, and patients with rare diseases, Know the principles of keeping medical records, Be able to monitor epidemiological indicators of oral diseases.	
Contents of the course: A modern understanding of dental caries; Saliva and oral health; Prevention of early childhood caries; Diet and oral health; Contemporary concept of remineralization of hard dental tissues: fluorides, casein-phosphopeptide, xylitol, ozone; Prophylactic measures in the prevention of mouth and tooth diseases (plaque detection, removal of soft deposits, removal of tartar, local application of fluoride, fissures sealant); Etiology and prevention of periodontal disease and soft tissues of the oral cavity; Etiology and prevention of orofacial region injury; Etiology and prevention of orthodontic malformations; Diagnosis of caries risk; Prevention of oral diseases of patients with special needs, medical risk and patients with rare diseases; Prophylaxis of oral diseases in patients with special needs, medical risks, and patients with rare diseases; The social medical significance of oral diseases; Oral health promotion; Health education.	
Recommended literature: 1. Harris NO, Garcia-Godoy F. Primary preventive dentistry. 6th ed. Upper Saddle River, New Jersey: Pearson Education, Inc.; 2004. pp.706	

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 45	Practicals: 45	Other modes of teaching:	Research paper:	

Teaching and learning methods:

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	3	Oral exam	60
Participation in practicals	27		/
Mid-term test (s)	5		/
Seminars	5		/
Other	/		/

Table 5.2 Subject specification

Study Programme: Integrated Studies of Dental Medicine	C9
Level of studies: Second	
Course: Microbiology and Immunology	
Course Leader (Name, middle letter, surname): Dušan B. Pavlica, Milena Ž. Radunović	
Course status (compulsory/elective): Compulsory	
ECTS: 9	**Year of the study: II / 3rd semester**
Entry requirements: /	**Course code: ST20MIKR**

Objectives of the course:
To familiarize students with the most common pathogens, their mechanisms of activity, as well as their identification using standard and contemporary methods of laboratory diagnostics.

Outcomes of the course:
After completing the course, students gain a basic knowledge of medical microbiology and immunology. They should understand the principles of microscopy, cultural and serological diagnostics of different human pathogens. Also, the students should get acquainted with the oral biotope and the microbiological mechanisms of developing diseases of dental tissue and periodontium.

Contents of the course:
Basics of bacterial cell structure, virulence factors, mechanisms of development of infectious diseases, prevention of infections (sterilization and disinfection), antibiotics and their mechanism of action.
Structure of the immune system, innate and acquired immunity (T and B lymphocytes), activity of the complement system and cytokines. Autoimmune diseases and their mechanisms, hypersensitivity reactions, vaccines and immune serums
Most common human bacterial pathogens (*Staphylococcus, Neisseriae, Streptococcus, Streptococcus pneumoniae, Enterococcus, Bordatella, Bacillus anthracis, Corynebacterium diphtheriae, Haemophilusinfluenzae, Legionella, Clostridium (Cl. tetani, Cl botulinum, Cl gas gangrenae), Listeria, Brucella, Mycobacterium, Enterobacteriaceae, Vibrio, Helicobacter, Campylobacter, Traponema pallidum, Borelliaburgdorferi, R. prowazeki, Chlamidiae)*
Most common human viral pathogens (HSV1, HSV2, VZV, CMV, EBV, HHV6, HHV7, HHV8, *Orthomyxoviridae, Rhabdoviridae, Poxviridae, Togaviridae, Paramyxoviridae*, hepatotropic viruses, HIV, prions)
Basic characteristics of the oral biotope. Most important members of the oral flora (oral streptococci, *Lactobacillus, Actinomyces, Porphyromonas, Provatella, Fusobacterium, Oralnespirohete, A. actinomycetemcomitans*, filamentous bacteria, oral protozoa and the most important fungi). Microbiological aspects of the dental plaque structure, etiopathogenesis of caries and periodontitis.

Recommended literature:
1.Samaranayake L.P. Essential Microbiology for Dentistry, Churchill Livingstone, 2002.
2.Marsh P, Martin M.V. Oral Microbiology, Wright, 2001
3.Abbas A, et al. Basic Immunology, Saunders 2006-2007. Page 21-41, 63-83, 123-143, 161-177, 193-209.

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 60	Practicals: 30	Other modes of teaching:	Research paper:	

Teaching and learning methods:

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	3	Written Test	55
Participation in practicals	27	Practical exam	5
Mid-term test (s)	8	Oral exam	
Seminars	2		
Other			

Table 5.2 Subject specification

Study Programme: Integrated Studies of Dental Medicine	C10
Level of studies: Second	
Course: Dental Anatomy with the Fundamentals of Gnathology	
Course Leader (Name, middle letter, surname): Rade S. Živković	
Course status (compulsory/elective): Compulsory	
ECTS: 8	**Year of the study: II / 3rd semester**
Entry requirements (passed exams from the previous years):	**Course code: ST20DEAN**
Objectives of the course: Studying the anatomy of permanent teeth and getting acquainted with the basics of gnathology.	
Outcomes of the course: After successfully completing the course, the student: - has been trained to recognize permanent teeth; - is able to perform wax sculpting of the teeth of the permanent dentition; - has acquired the basic knowledge of gnathology related to the anatomy and physiology of the orofacial system; - has acquired the basic knowledge of the articulation and has been trained to use the mean dental articulator**.**	
Contents of the course: Lectures : Introduction to morphology. Orofacial system. General knowledge of teeth. Definition, classification and function of the tooth. Dental formula. Periods of dentition. Chronology of tooth emergence. Dental nomenclature. Topographic-anatomical signs on the teeth. General oral and dental anatomy. Anatomical parts and structure of the teeth of the human population, class of permanent incisors, canines, premolars and molars in the lower and upper jaw. Introduction to gnathology, concept, definition and subject of study. Temporomandibular joint - anatomy and function. Muscles of the orofacial system, functional specifics of the masticatory muscles. Physiological regulation of lower jaw movements. Physiologically optimal occlusion and non-physiological occlusion. Practicals: Wax sculpting the teeth of permanent dentition; Methods of recording lower jaw movements. Posterior (articular) guidance and anterior (occlusal) guidance. Lower jaw reference positions, intercuspal position, physiological rest position, central relation. Using a facebow to transfer models into articulators. Simulation of lower jaw movements. Model based occlusal analysis in central and eccentric positions, Occlusal wax up according to Peter Thomas.	
Recommended literature: 1. Scheid C.R. and Weiss G. :Woelfl s Dental Anatomy, 8th Edition, Lippincott Williams and Wilkins, 2011. 2. Okeson P.J. : Management of Temporomandibular disorders and occlusion, 5th edition, Mosby 2001	

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 15	Practicals: 30	Other modes of teaching:	Research paper:	

Teaching and learning methods:			
Assessment (maximum number of points: 100)			
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	3	Written Test	20
Participation in practicals	27	Practical exam	40
Mid-term test (s)	10	Oral exam	
Seminars			
Other			

Table 5.2 Subject specification

Study Programme: Integrated Studies of Dental Medicine	C11
Level of studies: Second	
Course: Public Health	
Course Leader (Name, middle letter, surname): Svetlana B. Jovanović	
Course status (compulsory/elective): Compulsory	
ECTS: 5	**Year of the study: II / 4th semester**
Entry requirements (passed exams from the previous years):	**Course code: ST20JAZD**

Objectives of the course:
To enable the student to gain knowledge in the field of public health and to master the skills of planning and implementing prevention measures related to the general and oral health of the population. The student also acquires knowledge of the basics of epidemiology and the measurements of quality of life in relation to general and oral health.

Outcomes of the course:
After successfully completing the course, the student should be able to:
- Relate public health to dental science
- List risk factors for oral and dental diseases and participate in oral health research
- Implement programs, strategies, campaigns and other community actions in the prevention of oral and chronic non-communicable diseases
- Describe the measures to prevent intrahospital infections and epidemics of infectious diseases
- Participate in dental health education programs
- Understand the types of epidemiological studies
- Carry out quality of life measurements in relation to oral health

Contents of the course:
Introduction, definition, development and importance of public health and dental public health; exposure and dispositional risk factors contributing to the disease; prevention of health disorders; organization of health care by levels; measuring the general and oral health of the population using indicators; prevention measures for the preservation and promotion of general and oral health; demonstration of epidemiological research and conclusion of infectious and non-communicable diseases, planning of epidemic measures; infectious disease prevention measures; general and specific prevention measures; socio-medical diseases; assessment and measurement of quality of life in terms of general and oral health.

Recommended literature:
1. P. Dovijanić, M. Janjanin, I. Gajić,V. Radonjić, S. Jovanović-Radivojević. Basics of public health. Faculty of Stomatology, Belgrade, 2002. pp. 13-48, 81-148, 225-255, 280-285.
2. Katz DL, Wild D, Elmore JG, Lucan SC. Jekel's Epidemiology, Biostatistics, Preventive Medicine, and Public Health, 4th Edition. Saunders, Elsevier Inc. Philadelphia, PA. 2013. pp. 291-409.

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals: 15	Other modes of teaching:	Research paper:	

Teaching and learning methods:

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	3	Written Test	/
Participation in practicals	27	Practical exam	/
Mid-term test (s)	5	Oral exam	60
Seminars	5		
Other			

Elective Block 2
Oral Hygiene Products
Oral Homeostasis
Bone Tissue Physiology
Laboratory Diagnostics of Tumors in the Orofacial Region
Tumor Markers
Biostatistics in Dental Medicine
Management in Dentistry
Bad habits and oral health
Microbiological Aspects of Infection Control in Dentistry
Biofilm in Dentistry and Medicine
Informatics in Dental Medicine
Physical Properties of Dental Materials
Biophysics in Dentistry
Viral Infections in Dentistry
Microbiological Diagnostics of Infections in the Oropharyngeal Region
The Concept of Personalized Medicine in Dentistry
Comparable Dental Anatomy

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	2E1
Level of studies: Second	
Course: Oral Hygiene Products	
Course Leader (Name, middle letter, surname): Zoran T. Mandinić	
Course status (compulsory/elective): Elective	
ECTS: 2	**Year of the study: II / 4th semester**
Entry requirements (passed exams from the previous years):/	**Course code: I_2_01**
Objectives of the course: To introduce students to the types and techniques of oral hygiene maintenance.	
Outcomes of the course: After completing the course, the student should: -Understand the importance and role of oral hygiene in maintaining oral and general health -Identify oral hygiene products -Know various techniques of tooth brushing -Explain to the patient the purpose and importance of regular oral hygiene and demonstrate how it is practically performed (demonstration of tooth-brushing techniques) -Recommend appropriate toothpaste to the patient and explain the effect of fluoridated toothpaste in caries prevention -Motivate the child, parents and patients to maintain oral hygiene regularly and properly	
Content of the course: Importance of maintaining oral hygiene; basic conditions for maintaining oral hygiene in the prevention of oral diseases; basic oral hygiene products; oral hygiene aids; techniques for performing oral hygiene; training methodology in oral hygiene maintenance; recommendations for the preservation of hard and soft tissues of the mouth by applying oral hygiene products.	
Recommended literature: 1. Yankell SL, Saxer UP. Toothbrushes and Toothbrushing Methods. U: Harris NO, Garcia-Godoy F. Primary preventive dentistry. Sixt edition. Pearson Education, Inc., Pearson Prentice Hall, Upper Saddle River, New Jersey 07458, 2004. pp. 93-117. 2. Yankell SL, Fischman SL. Dentifrices, Mouthrinses, and Chewing Gums. U: Harris NO, Garcia-Godoy F. Primary preventive dentistry. Sixt edition. Pearson Education, Inc., Pearson Prentice Hall, Upper Saddle River, New Jersey 07458, 2004. pp. 119-144.	

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods
Teaching methods imply working in small groups and an interactive combination of brief theoretical remarks by the teacher, self-report to a group on a given topic based on previously analyzed literature, discussion on a given topic.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals	40		
Mid-term test(s)			
Seminars			
Other			

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	2E2
Level of studies: Second	
Course: Oral Homeostasis	
Course Leader (Name, middle letter, surname): Elena S. Krsljak	
Course status (compulsory/elective): Elective	
ECTS: 2	**Year of the study: II / 4th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_2_02**

Objectives of the course:
Acquiring the fundamental and applied knowledge in the field of oral physiology that enables understanding the physiological and regulatory mechanisms that contribute to the integrity of healthy tissues.

Outcomes of the course:
After completing the course and passing the exam, the student should be able to understand and explain:
- transport mechanisms on the cell membranes of orofacial tissues
- physiological transport criteria
- physiological processes that alter transport criteria
- secretion processes under different physiological conditions
- opportunities to maintain oral homeostasis under stress conditions
- physiological mechanisms of orofacial sensitivity
- physiological mechanisms of sensitivity control in the orofacial region
- physiological parameters that would be relevant and that would be used to make appropriate diagnoses
- physiological mechanisms that allow for future proper therapeutic procedures
- mechanisms for maintaining oral homeostasis

Contents of the course:
Consideration of signaling mechanisms in orofacial tissue cells, type and distribution of receptors, the use of primary and secondary messenger systems as signals regulating membrane transport and contribute to the maintenance of oral homeostasis in epithelial, connective muscle, nerve, bone and glandular tissue.

Recommended literature:
Miichael Edgar,Colin Dawes, Denis O'Mullane. Saliva and Oral Health, fourth edition, Stephen Hancocks Limited 2012(from 1st to 35th page)
Arthur C.Gayton, John E.Hall.Textbook of Medical Physiology, thirteenth edition, Elsevier Science 2015(from 47th to 105th page)

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	20	Written defense of a project on a chosen topic	60
Participation in practicals			
Mid-term test(s)			
Seminars			
Interactive discussion and teamwork	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	2E3
Level of studies: Second	
Course: Bone Tissue Physiology	
Course Leader (Name, middle letter, surname): Gavrilo B. Brajović	
Course status (compulsory/elective): Elective	
ECTS: 2	**Year of the study: II / 4th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_2_03**

Objectives of the course:
Acquiring knowledge about complex physiological processes that take place in bone tissue, the mechanisms and factors involved in their development and the influence of various endogenous and exogenous factors, with particular emphasis on the physiological processes that occur in alveolar bone.

Outcomes of the course:
After completing the course and passing the exam, students should have the knowledge that enables them to:
- List and explain the physiological roles of bone tissue in the body
- Describe the morphological and physiological characteristics of bone tissue
- Explain the complex physiological mechanisms involved in bone tissue formation and degradation, as well as the regulatory factors involved in these processes
- Explain the physiological mechanisms involved in the bone remodeling process, as well as the significance of that process
- Describe the influence of endogenous and exogenous factors on the process of bone tissue remodeling
- Explain the specifics of the physiology of the alveolar bone

Contents of the course:
Basic morphological characteristics of bone tissue, physiological characteristics of bone cells and properties of extracellular matrix, processes of bone tissue formation and degradation, bone remodeling, influence of endocrine, paracrine and autocrine factors on processes of bone degradation and formation, influence of exogenous factors on remodeling of bone, factors affecting the remodeling of the alveolar jaw bone.

Recommended literature:

1. Burr DB, Allen MR. Basic and applied bone biology. Elsevier Academic Press, 2014. pages. 3-90; 225-242.
2. Bilezikian JP, Raisz LG, Martin TJ. Principles of Bone Biology. Academic Press, 2008, 3rd edition. pages. 3-23; 153-219.
3. Bronner F, Farach-Carson M. Bone Formation. Springer, 2004. pages. 44-57.
4. Bronner F, Farch-Carson M, Rubin J. Bone Resorption. Springer, 2005. pages. 1-58.
5. Barrett EJ, Barrett P. The parathyroid glands and vitamin D. In: Boron WF, Boulpaep. Medical physiology, Saunders Elsevier, 2012, 2nd updated edition. pages.1094-1110.
6. White BA, Harison JR. Hormonal regulation of calcium and phosphate metabolism, Physiology of bone. In: Koeppen BM, Stanton BA. Berne & Levy Physiology, Elsevier, 2017, 7th edition. pages. 722-732.
7. Berkovitz B, Moxham B, Linden R, Sloan A. Alveolar bone: structure and composition. In: Oral biology, Churcill Livingstone Elsevier, 2011. pages 221-234.

Total number of classes of active teaching and learning:				Professional practice/independent work:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods
Classes are conducted in the form of interactive lectures in a small group of students, with the preliminary preparation of students for a thematic unit and an active discussion with the teacher on the given topic. In addition, each student receives a topic to prepare a seminar, which he/she presents to other students, with the active participation of all students in the discussion after presenting the seminar.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals			
Mid-term test(s)			
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	2E4
Level of studies: Second	
Course: Laboratory Diagnostics of Tumors in the Orofacial Region	
Course Leader (Name, middle letter, surname): Zvezdana Tepavčević	
Course status (compulsory/elective): Elective	
ECTS: 2	**Year of the study: II / 4th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_ 2_ 04**

Objectives of the course:
The objective of the course is to provide students with a knowledge of the basics of pathohistological diagnostics, and significant correlations between clinical and pathohistological findings.

Outcomes of the course:
After completing the course and passing the exam, the student should be able to:
- Distinguish different types of tumors in the orofacial region
- Demonstrate knowledge of the epidemiological and pathohistological parameters of oropharyngeal cancers
- Explain the methods for standard tissue processing, tissue fixation techniques, tissue molding and cutting
- List and explain classic and special dyeing techniques

Contents of the course:
-Basics of oral pathology, the importance of incidence of oropharyngeal tumors in dentistry; the importance of the correlations between epidemiological, pathohistological and clinical parameters in accurate and timely diagnosis;
-standard tissue processing and laboratory techniques for tissue fixation, molding and cutting, and staining tissue using basic hematoxylin-eosin staining;
-special staining methods necessary for the diagnosis of certain types of oropharyngeal cancers.

Recommended literature:
1. Cumar, Cortran, Robbins – PathologicBasis of Diseases, 2009. pp:3-103; 165-210;
2. J.V.Soames and J.C.Southam – Oral Pathology, Oxford Medical University,2002, pp:2-23; 25-35; 107-133;

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods Classes involve working in small groups and are designed as an interactive combination of short theoretical notes from teachers, introduction to work in a pathohistologic laboratory, self-report to a group on a given topic based on previously analyzed literature, discussion on a given topic.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals			
Mid-term test(s)			
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine				2E5
Level of studies: Second				
Course: Tumor Markers				
Course Leader (Name, middle letter, surname): Branko S. Dožić				
Course status (compulsory/elective): Elective				
ECTS: 2		**Year of the study: II / 4th semester**		
Entry requirements (passed exams from the previous years):		**Course code: I_2_05**		
Objectives of the course: To introduce students to the significance of tumor markers and their role in the diagnosis; to learn how to assess the stage of disease, predict the course of the disease, plan and monitor the therapeutic effect.				
Outcomes of the course: After completing the course, the student should: - be informed about the application of tumor markers in the diagnosis - be informed about the application of tumor markers in clinical practice, and their reliability - be able to interpret the results of tumor marker analysis and their impact on the therapy planning and tracking the therapeutic effects				
Contents of the course: Basic characteristics, formation and classification of tumor markers. Diagnostic procedures for determining their value. Interpretation of the findings obtained by tumor marker analysis (positive and negative results) in clinical practice as a means for the early detection of malignancies; monitoring patients with malignant tumors (in terms of assessing the need for a surgical procedure) and estimating the applied therapy. The importance and types of tumor markers in the pathology of head and neck region.				
Recommended literature: 1. M. Atanacković et al. Pathology. Faculty of Medicine, Belgrade, 2008. pp. 230-250. 2. V. Kumar, A. K. Abbas, J.C. Aster. Pathologic Basis of Disease, Ninth Edition, Saunders Elsevier, 2015. pp.265-295. 3. S. E. Mills at all. Diagnostic Surgical Pathology, Sixth edition, Wolters Kluwer Health, 2015. pp.2370-2990.				
Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	
Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.				
Assessment (maximum number of points: 100)				
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**		
Participation in lectures		Written defense of a project on a chosen topic	60	
Participation in practicals				
Mid-term test(s)				
Seminars	20			
Other	20			

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	2E6
Level of studies: Second	
Course: Biostatistics in Dental Medicine	
Course Leader (Name, middle letter, surname): Milicic R Biljana	
Course status (compulsory/elective): Elective	
ECTS: 2	**Year of the study: II / 4th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_2_06**

Objectives of the course:
Introducing students to statistical thinking, acquiring knowledge of the use of a particular statistical analysis, interpreting the obtained results, and the clinical application of the information and acquired knowledge; the role of this type of thinking and its limitations in daily dental practice; monitoring contemporary dental literature and scientific publications necessary for the advancement of dental work.

Outcomes of the course: After completing the course, the student should:
- Form a database, and prepare the data for further processing
- Describe collected data and present the results in tables and graphs.
- Understand the concept of hypothesis testing and steps in hypothesis testing:
  - o Defining statistical hypotheses: null and alternative hypothesis
  - o Determination of significance level
- Use specific statistical analysis in hypothesis testing:
  - o One sample case
  - o Two sample cases
  - o Examine associations between variables
  - o Categorical data analysis
- Interpret obtained results
- Present results in a way that indicates their subsequent implementation.
- Practically apply information and acquired knowledge.

Contents of the course:
Statistical terms and concepts; Generating and describing data; Probabilities and probability distribution; Statistical inference: confidence intervals and hypothesis testing. Database formation, data description, tabular and graphical presentation of results, performance of statistical tests, interpretation of obtained results and their presentation.

Recommended literature:
1. Kim JS, Dailey R. Biostatistics for Oral Healthcare. Blackwell Pub Professional, Iowa USA: State University Press; 2007. Page 5-160
2. http://davidmlane.com/hyperstat/ (*HyperStat Online Textbook* © 1993-2003 David M. Lane)

Total number of classes of active teaching and learning:				
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	Professional practice/ independent learning:

Teaching and learning methods: Introduction to the material by means of theoretical teaching.
Working in a small group in an electronic classroom, which involves interactive discussions, case presentations and independent solving of assigned case studies, seminars.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals	10		
Mid-term test(s)			
Seminars	20		
Other	10		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	2E7
Level of studies: Second	
Course: : **Management in Dentistry**	
Course Leader (Name, middle letter, surname): Svetlana B. Jovanović	
Course status (compulsory/elective): Elective	
ECTS: 2	**Year of the study: II / 4th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_2_07**
Objectives of the course: Acquiring knowledge of the general principles of management and health management, as well as specificities of management, planning, organization, leadership, communication and monitoring in healthcare institutions.	
Outcomes of the course: After completing the course and passing the exam, the student should be able to: - Describe general management principles - Apply the basic function of management in the management process - Distinguish between leadership and management - Explain the basic elements of the communication process - Conduct a decision-making process in a team	
Contents of the course: Definition, characteristics and development of general and health management; management functions: planning, organization, communication, control and coordination; basic theories and styles of leadership; the importance and need for communication in management; successful / effective manager and effective manager tools; evaluation and monitoring; management and work motivation; conflict and conflict management; collaboration and teamwork; decision-making and problem-solving.	
Recommended literature: 1. P. Dovijanić, M. Janjanin, I. Gajić,V. Radonjić, S. Jovanović-Radivojević. Basics of Public Health. Faculty of Stomatology, Belgrade, 2002. pp. 17-37. 2. Sharon B. Buchbinder and Nancy H. Shanks. Introduction to Health Care Management. Jones & Bartlett Learning; 3rd Edition, United States of America, 2016. pp.19-67, 117-134, 161-182, 189-216. 3. Joan Gratto Liebler and Charles R. McConnell. Management Principles for Health Professionals. Jones & Bartlett Learning; 7th Edition, United States of America, 2017. pp. 95-123.	

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching: 30	Research paper:	

Teaching and learning methods: Working in a small group, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)			
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals			
Mid-term test(s)			
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	2E8
Level of studies: Second	
Course: Bad Habits and Oral Health	
Course Leader (Name, middle letter, surname): Svetlana B. Jovanović	
Course status (compulsory/elective): Elective	
ECTS: 2	**Year of the study: II / 4th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_2_08**

Objectives of the course:
Acquiring knowledge about the harmful effects of smoking, alcoholism and drug addiction on general and oral health, epidemiological characteristics of addiction diseases and the role of dentists in the prevention of these diseases.

Outcomes of the course:
After completing the course and passing the exam, the student should be able to:
- Recognize addictive diseases
- Identify the role of harmful habits in the emergence of oral diseases
- Understand the importance of dentists in prevention of addiction disease
- Implement health education programs through teamwork to prevent these diseases

Contents of the course:
Definition, classification and mechanism of development of addictive diseases; social medical characteristics of addiction disease, prevalence and incidence rates, iceberg phenomenon; the adverse impact of alcohol, drugs and tobacco use on general and oral health; public health measures for the prevention of addiction, media campaigns; preventing the use of alcohol, drugs and tobacco by law; the role of society, health and dentists in the prevention of addiction diseases, health education.

Recommended literature:

1. P. Dovijanić, M. Janjanin, I. Gajić,V. Radonjić, S. Jovanović-Radivojević. Basics of public health. Faculty of Stomatology, Belgrade, 2002. pp. 81-105.
2. Shekarchizadeh H, Khami MR, Mohebbi SZ, Ekhtiari H, Virtanen JI.Oral Health of Drug Abusers: A Review of Health Effects and Care.Iran J Public Health. 42(9):929-40, 2013.
3. Zhang Y, He J, He B, Huang R, Li M. Effect of tobacco on periodontal disease and oral cancer. Tob Induc Dis. 9;17:40, 2019.
4. Albert D, Ward A.Tobacco cessation in the dental office. Dent Clin North Am. 56(4):747-70, 2012.

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals			
Mid-term test(s)			
Seminars	20		
Other	20		

Table 5.2. Subject specification

Study program: Integrated Studies of Dental Medicine			2E9
Level of studies: second			
Course:Microbiological Aspects of Infection Control in Dentistry			
Course Leader (Name, middle letter, surname): Dušan B. Pavlica			
Course status (compulsory/elective): Elective			
ECTS: 2		**Year of the study: II / 4th semester**	
Entry requirements : passed exams from the previous years		**Course code: I_2_09**	
Objectives of the course: Students will acquire knowledge of the most significant pathogens, the routes of microbial transmission in the dental practice, and infection-control methods used to prevent infections of the oropharyngeal and cervicofacial regions.			
Outcomes of the course: After completing this course the student should be able to: - Identify the most significant infectious agents causing infections of the oropharyngeal and cervicofacial regions; - Identify the routes of microbial transmission in the dental practice; - Select and apply suitable physical and chemical agents to prevent cross-contamination.			
Content of the course: Definitions of infection, (transient) bacteremia, and sepsis; the most significant bacterial, viral and fungal species causing infections relevant to dentistry; the role of microbiological laboratory in identifying infectious agents; principles and application of sepsis and antisepsis to prevent infections of the oropharyngeal and cervicofacial regions.			
Literature: Oral Microbiology. Marsh P., Martin M. Churchill Livingstone; 6th edition; 2016; Page: 127-185. Oral Microbiology and Immunology. Nisengard R.J., Newman M.G., 2nd edition; 1994; Page 120-243, 402-424. Medical Microbiology. Murray P.R., Rosenthal K.S., Pfaller M.A., 5th edition; 2005; Page 89-95.			
Total number of classes of active teaching and learning: 30			Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	
Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.			
Assessment (maximum number of points: 100)			
Pre-exam requirements	**40 points**	**Final exam**	**60 points**
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals			
Mid-term test(s)			
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	2E10
Level of studies: Second	
Course: Biofilm in Dentistry and Medicine	
Course Leader (Name, middle letter, surname): Milena Ž. Radunović	
Course status (compulsory/elective): Elective	
ECTS: 2	**Year of the study: II / 4th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_2_10**

Objectives of the course:
Students will gain the knowledge of the formation of biofilm and its impact, including the difference between planktonic bacteria and biofilm-forming bacteria, the role of biofilm in persistance and antibiotic resistance, and how it can lead to the development of dental diseases (caries, gingivitis, periodontal disease) and diseases affecting other systems.

Outcomes of the course:
After completing this course, the student should be able to:
- demonstrate knowledge of the formation and structure of biofilm
- understand the characteristics of microbial interactions within biofilm
- understand the role of biofilm in the development of dental and other diseases

Contents of the course:
The definition, developmental stages, and morphology of biofilm; characteristics of microbial interactions within biofilm; differences in the sensitivity of planktonic bacteria and biofilm-forming bacteria to antibiotics and chemicals; the role of biofilm in the development of caries (the formation of the acquired pellicle, acid production within biofilm); the role of biofilm in the development of gingivitis and periodontal disease (production of alkaline products, oxidation-reduction potential change); the role of biofilm in medicine (endocarditis, pneumonia, urinary infections, sepsis).

Recommended literature:
1) Bagg, J., MacFarlane, T. W., Poxton, I. R., & Smith, A. J. Essentials of microbiology for dental students (2nd ed.). Oxford: Oxford University Press, 2006. pp. pp.147-156, 163-176, 185-194, 219-311.
2) Lakshman, S. Essential Microbiology for Dentistry (4th ed.) Churchill Livingstone, 2012. pp. 38-48, 93, 265-321.

Total number of classes of active teaching:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching: 30	Research paper:	

Teaching methods: Working in small groups, seminars, interactive discussions, case reports, case studies

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total: 40 points**	**Final exam: 60 points**	
Activities in lectures		Written defense of a project on a chosen topic	60
Activities in practicals			
Mid-term tests			
Seminars	20		
In-class assessments	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	2E11
Level of studies: Second	
Course: Informatics in Dental Medicine	
Course Leader (Name, middle letter, surname): Milicic R Biljana	
Course status (compulsory/elective): Elective	
ECTS: 2	**Year of the study: II / 4th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_2_11**

Objectives of the course:
Introduction to basic concepts of medical informatics and electronic environment: electronic medical records, their advantages, and limitations in comparison to paper records. Connection of electronic records with the health record system. Acquiring basic knowledge about how to get the best information in the medical decision-making process, as well as how to evaluate its quality.

Outcomes of the course:
After completing the course, the student should:
- Use electronic and computer-aided learning.
- Use practical tools to search medical-knowledge bases.
- Form keywords to properly search medical-knowledge bases.
- Search bibliographic and other databases.
- Use software packages to store collected data/information.
- Describe collected data/information.
- Evaluate the quality of the received information.
- Present the received information.
- Properly utilize information in the medical decision-making process.

Contents of the course: Data, information and knowledge in dentistry; Medical knowledge bases, forming keywords for their search and evaluation of the quality of the obtained information; Health record systems in dentistry; Electronic health records.

Recommended literature:
Shortliffe, E.H., Cimino, J.J. Biomedical Informatics: computer applications in health care and biomedicine. 4th Edition, Kindle Edition. Springer-Verlag London 2014 Pages: 67-107; 149-184; 355-421; 517-539

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods: Introduction to the material by means of theoretical teaching.
Working in a small group in an electronic classroom, which involves interactive discussions, case presentations and independent solving of assigned case studies, seminars.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals	10	Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	10		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	2E12
Level of studies: Second	
Course: Physical Properties of Dental Materials	
Course Leader (Name, middle letter, surname): Đorđe I Stratimirović	
Course status (compulsory/elective): Elective	
ECTS: 2	**Year of the study: II / 4th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_2_12**

Objectives of the course:
To gain knowledge of the physical principles of material science. Understanding material properties and concepts required for describing and quantifying the mechanical, thermal, optical and electrical properties of the materials used in dentistry. To become familiar with the methods for analyzing the physical properties of materials.

Outcomes of the course:
After completing the course and passing the exam, the student should:
- be able to describe and understand the basic quantities of deformable bodies
- be able to recognize and explain the basic quantities of the mechanical, thermal, electrical and optical properties of the materials
- be familiar with the models of intermolecular bonds and their relationship with material properties
- differentiate between different types of matter and describe their structure
- know and differentiate between the methods for testing the structure and properties of materials
- perceive, select and apply materials in dental practice.

Contents of the course:
Structure of matter. Intermolecular forces and bonds. Phases and phase transitions. Surface phenomena. Mechanical properties of materials. Thermal properties of materials. Electrical properties of materials. Optical properties of materials. Methods of material structure analysis.

Recommended literature:
F. Tölgyesi, I. Derka, K. Módos, Physical Bases of Dental Material Science, Semmelweis University Budapest, 2012. 1-213.

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written Test	
Participation in practicals		Practical exam	
Mid-term test(s)		Oral defense of a project on a chosen topic	60
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	2E13
Level of studies: Second	
Course: Biophysics in Dentistry	
Course Leader (Name, middle letter, surname): Đorđe I Stratimirović	
Course status (compulsory/elective): Elective	
ECTS: 2	**Year of the study: II / 4th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_2_13**

Objectives of the course:
Introduction to basic physical principles necessary to understand the processes and structures of biological systems and modern diagnostic methods. Gaining insights into the physical phenomena that underlie physiological processes. Training in the quantitative description of physical and other phenomena and developing analytic and synthetic ways of thinking.

Outcomes of the course:
After completing the course, the student should:
- be able to describe the basic physical terms and quantity
- know the basics of measuring and displaying measurement results
- adopt an analytical and qualitative approach to the study of biological systems
- differentiate between the types of matter and describe their structure
- know the basic mechanical, electrical, thermal and optical phenomena in biological processes
- understand the basic concepts of static and solve simple problems
- be familiar with the concepts of thermodynamics and understand the thermodynamic processes of the cell membrane
- gain insight into the wave and quantum mechanical description of the structure of matter.

Contents of the course:
Basic concepts and physical quantities. Fundamentals of metrology and orthography. Structure of matter. Mechanical properties of solid bodies. Properties of liquids and gases. Thermodynamics and phase transitions. Membrane Physics. Oscillations and waves. Electromagnetic radiation and spectrum. Electrical phenomena and electric currents. Optics. Physics of atoms and molecules. Fundamentals of quantum mechanics. Ionizing radiation and radioactivity.

Recommended literature:
1. Newman J. Physics of the life sciences, Springer; 2008. 1-265, 297-538, 603-656.
2. Halliday D, Resnick R, Walker J. Fundamentals of Physics Extended, 10th Edition, Wiley; 2013. Page: 1-930, 972-1046, 1153-1250, 1276-1308.
3. F. Tölgyesi, I. Derka, K. Módos, Physical Bases of Dental Material Science, Semmelweis University Budapest, 2012. 1-60.

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written Test	
Participation in practicals		Practical exam	
Mid-term test(s)		Oral defense of a project on a chosen topic	60
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine			2E14
Level of studies: second			
Course: Viral Infections in Dentistry			
Course Leader (Name, middle letter, surname): Dušan B. Pavlica			
Course status (compulsory/elective): Elective			
ECTS: 2		**Year of the study: II / 4th semester**	
Entry requirements : passed exams from the previous years		**Course code: I_2_14**	
Objectives of the course: Students will acquire knowledge of different viruses that cause systemic and local infections relavant to dentistry (herpes viruses, Hepatitis B, C, and D, papilloma viruses, HIV), their laboratory diagnostics and interpretation of the results obtained. Additionally, students will acquire knowledge of specific and non-specific measures applied to prevent infections caused by these viruses.			
Outcomes of the course: After completing this course the student should be able to: - Determine the transmission pathways of certain viruses causing infections relevant to dentistry - Interprete the results of laboratory diagnostics used to detect viral infections relevant to dentistry - Apply suitable specific and non-specific measures to prevent viral infections relevant to dentistry			
Content of the course: Review of general characteristics of viruses. Review of direct and indirect laboratory diagnostic tools used to detect viruses. Fundamental features of herpes viruses, hepatotropic viruses relevant to dentistry (HBV, HCV, HDV), papilloma virus, HIV, and the infections caused by these viruses. Interpretation of the results of laboratory diagnostics used to detect viral infections.			
Literature Oral Microbiology. Marsh P., Martin M. Churchill Livingstone; 6th edition; 2016; Page: 147-153. Clinical virology in oral medecine and dentistry. Scully C., Samaranayake L. Cambridge, University Press, 1992; Page: 135-166, 168-180, 217-247, 260-309, 315-349,378-405.			
Total number of classes of active teaching and learning:			Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	
Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.			
Assessment (maximum number of points: 100)			
Pre-exam requirements	**40 poens**	**Final exam**	**60 points**
Participation in lectures		Written defense of a project on a chosen topic	60 points
Participation in practicals			
Mid-term test(s)			
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	2E15
Level of studies: Second	
Course: Microbiological Diagnostics of Infections in the Oropharyngeal Region	
Course Leader (Name, middle letter, surname): Milena Ž. Radunović	
Course status (compulsory/elective): Elective	
ECTS: 2	**Year of the study: II / 4th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_2_15**

Objectives of the course:
Students will gain knowledge of microbiological diagnostics of infections in the oropharyngeal region, including the advantages and limitations of certain diagnostic methods. These insights should enable students to provide proper interpretations of the results obtained in a microbiological laboratory.

Outcomes of the course:
After completing this course, the student should be able to:
- collect microbiological samples
- complete the microbiology form and clearly indicate what the microbiologist should provide
- understand the basic principles of diagnosing bacterial and viral infections
- properly interpret the results of serological analyses
- differentiate between various methods of determining antimicrobial resistance
- interpret the results of antibiogram testing and select appropriate antibiotics

Contents of the course: Microbiology specimen collection and referring to laboratories for testing; microscope and microscopy; cultivation of bacteria on artificial media; identification of bacteria based on cultural, physiological, and biochemical characteristics; identification of bacteria based on antigenic properties using genome detection methods; determining antimicrobial resistance and interpreting the results of antibiogram testing; cultivation and identification of viruses in living cell systems; identification of viruses without cultivation; using serological diagnostic tests to detect viral diseases.

Recommended literature:
1) Laboratory Diagnosis of Virus Diseases. In: Fenner and White's Medical Virology. Burrel C.J., Howard C.R., Murphy F.A. 5th ed., Elsevier Inc. 2017, pp.149-154
2) Herpesviuses. In Fenner and White's Medical Virology. Burrel C.J., Howard C.R., Murphy F.A. 5th ed, Elsevier Inc. 2017, p.245-246; p.249(Lab. dg VZV); pp. 253-254; p.257-259
3) Retroviuses. In Fenner and White's Medical Virology. Burrel C.J., Howard C.R., Murphy F.A., 5th ed, Elsevier Inc. 2017, pp.336-337
4) Hepatitis B and Hepatitis Delta virus. In Fenner and White's Medical Virology. Burrel C.J., Howard C.R., Murphy F.A. 5th ed .,Elsevier Inc. 2017, p.305-306; pp.312-313
5) Flaviviruses In Fenner and White's Medical Virology. Burrel C.J., Howard C.R., Murphy F.A. 5th ed., Elsevier Inc. 2017, pp.516
6) Laboratory Diagnosis of Viral Diseases. In Medical Microbiology. Murray P.R., Rosenthal K.S., Pfaller M.A. 8th ed., Elsevier Inc. 2016, pp.397-399

Total number of classes of active teaching:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching: 30	Research paper:	

Teaching methods: Working in small groups, seminars, interactive discussions, case reports, case studies

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total: 40 points**	**Final exam: 60 points**	
Activities in lectures		Written defense of a project on a chosen topic	60
Activities in practicals			
Mid-term tests			
Seminars	20		
In-class assessments	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	2E16
Level of studies: Second	
Course: The Concept of Personalized Medicine in Dentistry	
Course Leader (Name, middle letter, surname): Jelena Roganović	
Course status (compulsory/elective): Elective	
ECTS: 2	**Year of the study: II / 4th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_2_16**
Objectives of the course: To introduce students to the concept of personalized medicine in dentistry.	
Outcomes of the course: After completing the course successfully, the student should be able to: -Understand the difference between a conventional and an individually tailored treatment plan -Explain how this concept impacts physician-patient relationship and the healthcare system -Understand the application of knowledge of genetics, genomics and epigenetics in molecular diagnostics and drug therapy -Know the principles of targeted therapy in dentistry	
Contents of the course: Foundations and significance of personalized medicine in dentistry; basics of genetics and genomics; personalized medicine and technology development; clinical significance of biomarkers; applications of genetic knowledge in personalized medicine; genomics and oral diseases; implications for the health system and the education of dental students.	
Recommended literature: Sonis ST. Genomics, Personalized Medicine and Oral Disease. Springer International Publishing Switzerland, 2015. (pages 1-70; 333-389.). Polverini P. Personalized Oral Health Care: From Concept Design to Clinical Practice. Springer International Publishing, 2018. (pp. 1-25; 43-60; 87-144.).	

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	
Teaching and learning methods				

Assessment (maximum number of points: 100)			
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals			
Mid-term test(s)			
Seminars	20		
Other	20		

Table 5.2 Subject specification

Styding programme: **Integrated Studies of Dental Medicine**			2E17
Type and level of studies: Second			
The name of subject: Comparable Dental Anatomy			
The superior of the subject: (Name, Middle letter, Surname): Rade S. Zivkovic			
Status of subject (obligatory/elective): elective			
The number of ECTS: 2		**The year of studies: II / 4th semester**	
Entry requirements (passed exams from the previous years):		**Code of subject: I_2_17**	
The aim of subject: To introduce students to the basics of dental anatomy.			
The outcome of the subject: Students possess knowledge about the basics of comparable dental anatomy.			
Content of the subject: Introduction to morphology. Stomatognathic system. General knowledge about teeth. Characteristics of the teeth of human dentition; Types of teeth. Shapes of teeth among mammals. Theories about origin and shapes of teeth; The change of teeth. Phylogenesis dento-osseous junction; Lobules. Lobular morphology of teeth; Comparable dental anatomy; The position of teeth in dental arches; Human tooth development (odontogenesis); Formation of the teeth among mammals; Possibilities of treatment of the teeth among mammals; Connection between the growth and development of teeth among mammals; ** Specialised practice: individual work out of the scheduled plan for practical lessons.			
The obligatory student regime within practical lessons (if it is scheduled within the plan and programme)			
Carving 9 different teeth of human dentition out of wax			
Literature Woelfel's dental anatomy Rickne C. Scheid [electronic resource] - 8th ed.			
The number of active lessons			Professional practice – independent work:
Lectures: 30	Practicals:	Other modes of teaching : 30	
Teaching methods: Interactive learning, seminars.			
Assessment (maximum number of points: 100)			
Pre-exam requirements		**Final exam**	
Seminar I	15	Written defense of a project on a chosen topic	**60**
Seminar II	15		
Mid-term test	10		

Table 5.2 Subject specification

Study Programme: Integrated Studies of Dental Medicine	C12
Level of studies: Second	
Course: Pathophysiology	
Course Leader (Name, middle letter, surname): Maja P. Miletić	
Course status (compulsory/elective): Compulsory	
ECTS: 8	**Year of the study: III / 5th semester**
Entry requirements (passed exams from the previous years):	**Course code: ST20PAFI**

Objectives of the course:
Acquiring the knowledge of pathophysiological processes related to the etiology and pathogenesis of diseases studied in general medical and different dental disciplines.

Outcomes of the course:
After successfully completing the course, the student should be able to:
- Demonstrate knowledge of different types of etiological factors and their characteristics related to the pathological process, including the aspects of interactions with various structures of the organism;
- Demonstrate knowledge and understanding of the mechanisms of the pathological process at the molecular level and its development, starting from biochemical, subcellular and cellular damage, through humoral and tissue disorders, disorders of various organs and organ systems leading to the manifestation of disease;
- Interpret the pathogenesis of changes/disorders that give oral manifestations;
- Describe the ways of adaptation and response of the diseased organism to the external environment;
- Know the basic principles of functional testing of disorders of different organs and organ systems and independently analyze laboratory results.

Contents of the course:
During the lectures and practicals students will be introduced with general and specific aspects of pathophysiology. In general part the focus will be directed toward understanding the role of different etiological agents in disease process and disturbance of specific and nonspecific immunity. In the specific part of the course the focus will be directed to etiopathogenesis of diseases of different human body systems with special attention to oral diseases and oral manifestations of them.

Recommended literature:
1. Hubert R.J., VanMeter K.C., GOULD'S Pathophysiology for the Health Professions. 6th Edition. Elsevier Science, Amsterdam, Netherlands, 2018.
2. Huether S.E., McCance K.L. Understanding Pathophysiology, 6th Edition. Elsevier Science, Amsterdam, Netherlands, 2016.
3. McCance K.L., HuetherS.E.. Study Guide for Pathophysiology: The Biological Basis for Disease in Adults and Children, 8th Edition. Elsevier Science, Amsterdam, Netherlands, 2018.
4. McPhee S.J., Ganong W.F. Pathophysiology of Disease. An Introduction to Clinical Medicine. 5thedition.The McGraw-Hill Companies, Inc. USA, 2006.
5. Porth C. Essentials of Pathophysiology: Concepts of Altered States. LWW Lippincott Williams and Wilkins, Philadelphia, Pennsylvania, United States 2018.

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 60	Practicals: 30	Other modes of teaching:	Research paper:	

Teaching and learning methods:

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	3	Written Test	15
Participation in practicals	27	Practical exam	
Mid-term test (s)	10	Oral exam	45
Seminars			
Other			

Table 5.2 Subject specification

Study Programme: Integrated Studies of Dental Medicine	C13
Level of studies: Second	
Course: Preclinical Mobile Prosthodontics	
Course Leader (Name, middle letter, surname): Ivica Z. Stančić	
Professors: Kosovka Obradović Đuričić, Ljiljana Tihaček Šojić, Aleksandar Todorović, Vojkan Lazić, Ivica Z. Stančić, Slobodan Dodić, SrđanPoštić, Rade Živković, Aleksandra Milić, Aleksandra Špadijer Gostović, Vesna Medić, Miodrag Šćepanović, Igor Đorđević	
Course status (compulsory/elective): Compulsory	
ECTS: 7	**Year of the study: III / 6th semester**
Entry requirements (passed exams from the previous years):	**Course code: ST20PRMP**

Objectives of the course:
To enable the students to gain a basic knowledge of the procedures of making complete, partial acrylic and partial skeletal dentures, as well as to be able to apply it in practical work during certain laboratory phases of making removable dental restorations.

Outcomes of the course:
After successfully completing the course, the student should be able to develop anatomical and diagnostic models. Create an individual tray and wax rims. Position the anterior and posterior teeth for total and partial dentures, and independently make wire clasps. Analyze models for studies in the parallelometer; plan the design of partial skeletal prosthesis for different classes of dentition. Possess knowledge of the laboratory stages of making removable partial denture. Flasking and deflasking procedures and all other laboratory procedures are well introduced and explained.

Contents of the course:
Impression materials in removable dental prosthetics. Building materials in the laboratory production of removable dental prosthetics; Preliminary impression: definition, selection of trays, materials and impression. Preparation of preliminary impression for casting. Exudation of a preliminary - anatomical model. Individual trays: types and workmanship. Definition and division of definitive impression. Creating a working model. Model Transfer to Articulator: Finding a Cinematic Rotation Center of condyles. Transferring the model of the upper edentulous jaw into a semi-adjustable articulator (procedure and possible errors). Transmission of the model of the lower edentulous jaw with the help of the register of the centric relation. Concepts of occlusion in the wearer of complete dentures. Bilateral balanced occlusion. Functional and physiognomic significance of anterior teeth. Choosing the size, shape and color of the front teeth for edentulous patients. The procedure for setting the front teeth. Determination of the position of the lateral teeth in individuals with eugnatic jaw ratios. Procedure for setting the posterior teeth. Definitive tooth placement. Final procedures in the production of complete dentures. Topographic classification of partial edentulous jaws and interrelationships between teeth and jaws. Forms and types of partial dentures. Partial acrylic denture: definition, parts. Planning of partial acrylic prosthesis. Laboratory production of partial acrylic denture. Removable partial denture: definition, types, parts. Retention, stabilization, transfer of occlusal loads, and guidance of removable partial denture. Application of parallelometers in the design and manufacture of removable partial dentures. Laboratory production of removable partial denture. Attachments and double crowns of partial dentures.

Recommended literature: Compulsory: (total 470 pages)
1. Arthur O.Rahn, John R. Ivanhoe, Kevin D. Plummer: Textbook of complete dentures, 6th Ed.,People's Medical Publishing House,2009 (7-18p.; 25-63p.; 85-224p.; 303-429p.)
2. John D. Jones, Lily T. Garcia: Removable Partial Dentures A Clinician's Guide, 1st Ed., Blackwell Publishing, 2009 (8-118p.; 137-155p.)
3. James S. Brudvik: Removable Partial Dentures, Quintessence Publishing,1999. (63-91p.)

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals: 45	Other modes of teaching:	Research paper:	

Teaching and learning methods:

Assessment (maximum number of points: 100)

Pre-exam requirements	**40 points**	**Final exam**	**60 points**
Participation in lectures	3	Test	30
Participation in practicals	27	Practical exam	30
Mid-term test (s)	10		
Seminars			
Other			

Table 5.2 Subject specification

Study Programme: Integrated Studies of Dental Medicine	C14
Level of studies: Second	
Course: Restorative Odontology-Preclinical	
Course Leader (Name, middle letter, surname): Mirjana G Vujašković	
Course status (compulsory/elective): Compulsory	
ECTS: 7	**Year of the study: III / 5th and 6th semesters**
Entry requirements (passed exams from the previous years):	**Course code: ST20BOZP**

Objectives of the course:
To master the techniques of cavity preparation and restoration placement.

Outcomes of the course:
After completing the course, the students should be able to:

- Demonstrate knowledge of hard dental tissue diseases: etiology, diagnosis and classification of caries lesions
- Use equipment and instruments in dental practice
- Master skills to provide indirect vision, fixation using contra angled handpiece, rotary and hand instruments
- Explain the tooth numbering system, nomenclature
- Analyze Black's principles of cavity preparations, Class I, II, MOD,III,IV, V
- Explain and perform all types of cavity preparation
- Analyze restorative procedures and application of temporary fillings, bases, glass ionomer cements, adhesive systems, composite materials and amalgam.

Contents of the course:
Dental tissue diseases; Etiology, diagnosis, pathogenesis and classification of caries; dental chair unit ; indirect vision and fixation; rotary and hand instruments; nomenclature (tooth numbering system); Black's principles of cavity preparations; Class I, II, MOD, III, IV,V, VI; Preparation of adhesive and restrictive cavities; Cavity preparation for indirect restorations; Materials for temporary fillings, bases, liners, glass ionomer cements, adhesive systems, composite materials and amalgam .

Recommended literature
Fundamentals of Operative Dentistry: Summit J.B.et al.3ed.Quintenssence Publishing Co Inc 2006.

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals: 60	Other modes of teaching:	Research paper:	

Teaching and learning methods:

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	3	Written Test	30
Participation in practicals	27	Practical exam	15
Mid-term test (s)	8	Oral exam	15
Seminars	2		
Other			

Table 5.2 Subject specification

Study Programme: Integrated Studies of Dental Medicine	C15
Level of studies: Second	
Course: General Surgery	
Course Leader : Bojan Kovačević	
Course status (compulsory/elective): Compulsory	
ECTS: 6	**Year of the study: III / 6th semester**
Entry requirements (passed exams from the previous years):	**Course code: ST20OPHI**

Objectives of the course:
Acquiring knowledge of the general principles of surgery, surgical instruments, asepsis and antisepsis, diagnostics and preoperative preparation, surgical techniques and postoperative complications.

Outcomes of the course:
After completing the course and passing the exam, the student should be able to:
- take a medical history and perform a clinical examination of a surgical patient
- recognize basic diagnostic procedures, their significance and limitations
- apply the basic principles of asepsis and antisepsis in clinical practice
- implement basic cardiopulmonary resuscitation measures
- recognize basic surgical instruments and their usage
- set bandages and immobilizers, give injections and infusions
- perform haemostasis and demonstrate a basic knowledge of blood transfusion
- recognize surgical infection, and perform abscess incision and drainage
- know the basic principles of surgical techniques
- know the basic principles of surgical oncology
- recognize surgical emergencies

Contents of the course:
The course should equip students with the knowledge of the basic principles of general surgery and a more detailed knowledge of certain areas of this specialty which are related to dentistry or have an influence on the practice of dentistry. The course provides students with information on general topics including wound healing and sepsis, bleeding, haemostasis, trauma, resuscitation, surgical infections. It covers important topics from vascular surgery, abdominal surgery, endoscopic surgery, thoracic surgery, urology and surgical oncology.

Recommended literature:
F. Charles Brunicardi, Dana K. Andersen, Timothy R. Billiar, David L. Dunn, Lillian S. Kao, John G. Hunter, Jeffrey B. Matthews, Raphael E. Pollock. Schwartz's Principles of Surgery, 11e. McGraw-Hill Education 2019.
Chapters 2-10, 16-19, 23-34, 37, 38

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 45	Practicals: 45	Other modes of teaching:	Research paper:	

Teaching and learning methods:

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	3	Written Test	20
Participation in practicals	27	Practical exam	
Mid-term test (s)	10	Oral exam	40
Seminars			
Other			

Table 5.2 Subject specification

Study programme: **Integrated Studies of Dental Medicine**	C16
Level of studies: Second	
Course: Internal Medicine	
Course Leader (Name, middle letter, surname): Milan D.Brajovic	
Course status (compulsory/elective): Compulsory	
ECTS: 6	**Year of the study: III / 5th semester**
Entry requirements (passed exams from the previous years):	**Course code: ST20/INME**
Objectives of the course: To enable the students to take a knowledgeable and critical attitude towards diseases in the field of internal medicine and to take a professional and safe attitude regarding the need for diagnostics and treatment of patients, with the aim of providing efficient and optimal planned dental treatment.	
Outcomes of the course: After successfully completing the course, the student should: Have the knowledge and competence to make an expert assessment in dental practice regarding the essential characteristics of the disease and potentially dangerous complications within all diseases in the field of internal medicine, so that the risks of side effects during the dental intervention are minimized; Have the knowledge and understanding of the etiology, pathophysiology, symptoms, diagnosis and treatment of all diseases; and Be able to prepare patients for dental interventions.	
Contents of the course: Lectures patient's history, physical examination - inspection, palpation, percussion and auscultation of the head and neck, chest, abdomen and extremities. Etiology, pathophysiology, clinical characteristics, diagnostics, therapy, and complications of the cardiovascular , respiratory, gastrointestinal, endocrine and metabolic, kidney and urinary tract, immune, connective tissue and joints and hematology system diseases. Practicals Patient's history, physical examination - general, head and neck, cardiovascular system, respiratory system, abdomen, and extremities. Pulmonary and cardiac diseases - case reports, a presentation, and a mid-term test; Digestive and endocrine diseases presentation - case reports and a mid-term test.	
Recommended literature: Harrison's Principles of Internal Medicine, International Edition	

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 45	Practicals: 60	Other modes of teaching:	Research paper:	

Teaching and learning methods:

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	3	Written Test	
Participation in practicals	27	Practical exam	10
Mid-term test (s)	9	Oral exam	50
Seminars	1		
Other			

Table 5.2 Subject specification

Study Programme: Integrated Studies of Dental Medicine	C17
Level of studies: Second	
Course: GENERAL MEDICINE (Infectious diseases, Neurology, Psychiatry, Ophthalmology, Dermatology)	
Course Leader (Name, middle letter, surname): Vesna T. Jovanović	
Course status (compulsory/elective): Compulsory	
ECTS: 4	**Year of the study: III / 6th semester**
Entry requirements (passed exams from the previous years):	**Course code: ST20MEDB**

Objectives of the course:
To introduce students to the basics of neurology, ophthalmology, dermatology, psychiatry and infectious diseases.

Outcomes of the course:
- Students should be able to perform patient evaluation and recognize the most common medical conditions in the general population.
- Students are familiar with emergency cases.
- If a medical emergency is complex, students are familiar with appropriate medical referral procedures

Contents of the course:
This course covers some of the most common diseases in the general population in response to real life situations. Several health professional programs (infectious diseases, neurology, ophthalmology and dermatology) will cover the basics needed to resolve some complex cases. It will include medical history, physical examination and investigations. Particular emphasis will be placed on medical emergencies and their management.

Recommended literature:
- Ophthalmology – James B, Chew C, Bron Anthony. Lecture notes on Ophthalmology. BlackwellScience Ltd, Oxfrod, UK 1997 (p 1 – 193)
- Harrison's Principles of Internal Medicine, Twentieth Edition (Vol.1 & Vol.2) 20th Edition by J. Larry Jameson; Part V – Infectious Diseases
- EUREKA: Neurology & Neurosurgery. Goodfellow J, Collins DR, , Silva AHD, Dardis R, Nagaraja S. JP Medical Ltd-Jaypee Brothers, 2016. ISBN: 9781907816741
- pg: 1-107, 195-200, 209-223, 225-230, 239-266, 269-283, 309-325, 327-338
- Neurological Examination Made Easy. Fuller G. Churchill Livingstone 5th. Ed, 2013.
- Wolff K, Johnson KW, Saavedra AP. Fitzpatrick's Color Atlas and SynopsisofClinical Dermatology. 7th ed. New York, St. Louis: McGraw-Hill; 2013.
- James G. Marks Jr. MD, Jeffrey J. Miller MD. Lookingbill and Marks'Principles of Dermatology: 5 th Ed, 2013
- https://www.integration.samhsa.gov/health-wellness/Clinical_Concerns_in_Dental_Care_for_Persons_With_Mental_Illness.pdf ; http://medind.nic.in/daa/t15/i1/daat15i1p20.pdf
- http://saiddent.org/admin/images/00259300_1478812617a.pdf
- https://www.ejmanager.com/mnstemps/176/176-1521283000.pdf?t=1570879759
- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4841282/
- https://www.ncbi.nlm.nih.gov/pubmed/12809183
- https://link.springer.com/article/10.1186/s13030-016-0068-2
- http://medind.nic.in/daa/t11/i1/daat11i1p138.pdf
- https://www.ada.org/~/media/ADA/Files/ADA_Dentist_WellBeing%20Handbook.pdf?la=en
- https://www.webmd.com/oral-health/features/dont-fear-the-dentist#1https://www.psychologytoday.com/us/blog/evolution-the-self/201802/how-overcome-dental-anxiety
- https://www.mouthhealthy.org/en/az-topics/a/anxiety

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: **45**	Practicals: **15**	Other modes of teaching:	Research paper:	

Teaching and learning methods:

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	3	Written Test	60
Participation in practicals	27	Practical exam	
Mid-term test (s)	10	Oral exam	
Seminars			
Other			

Table 5.2 Subject specification

Study Programme: Integrated Studies of Dental Medicine	C18
Level of studies: Second	
Course: Fundamentals of Clinical Radiology	
Course Leader (Name, middle letter, surname): Biljana B. Marković Vasiljković	
Course status (compulsory/elective): Compulsory	
ECTS: 9	**Year of the study: III / 5th and 6th semesters**
Entry requirements (passed exams from the previous years):	**Course code: ST20RADI**
Objectives of the course: The objective of the course is to provide students of dentistry with theoretical and practical instruction, and to gain a basic knowledge in dentomaxillofacial and general radiology. Acquiring knowledge of radiology will enable the students to understand and upgrade their knowledge of clinical dental subjects in the coming years during their studies.	
Outcomes of the course: The students will adopt various radiological techniques and methodologies that they will be able to apply independently upon completion of the study, including those that they will be able to indicate in order to further evaluate the patient's condition. With the acquired knowledge in the field of pathology and pathophysiology, the students will be able to observe and analyze their radiological presentation. The student will adopt measures and procedures, become familiar with technical equipment for protection against the side effects of ionizing radiation for both the patient and the personnel.	
Contents of the course: The course Fundamentals of Clinical Radiology includes theoretical units and practical instructions concerning: - The nature and origin of X-ray radiation, principles of X-ray image formation, analog and digital records of X-ray image. - The introduction to X-ray machines and the biological effects of ionizing radiation, protection principles and dosimetry. Particular attention is given to radiographic intraoral, extraoral and tomographic methods used in the evaluation of the pathology of the dentomaxillofacial region. - The methodological units devoted to developmental disorders of the teeth and facial massif, inflammatory and tumoral changes of odontogenic and non-odontogenic origin. Radiological imaging of jaw cysts, diseases of salivary glands, temporomandibular joint and pathology of paranasal cavities are processed by clinical and radiological algorithm from conventional radiology to magnetic resonance imaging. - Radiological diagnostics and gradation of injuries to the teeth, surrounding tissue and facial region as a whole are addressed in separate methodological units. - Systemic diseases and their presentation in the dentomaxillofacial region have been addressed through appropriate radiological modalities. - Five methodological units are devoted to the basics of the heart, lung, digestive, and urinary tract radiology.	
Recommended literature: 1.Richard B. Gunderman Essential Radiology: Clinical Presentation Pathophysiology Imaging (3rd edition) Thieme 2014. - 338 p. 2. Hubar S.J. Fundamentals of oral and maxillofacial radiology. Wiley Blackwell. 2017. -258 p. 3. Koong.B. Atlas of oral and maxillofacial radiology. Wiley Blackwell.2017. – 367 p.	

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 60	Practicals: 60	Other modes of teaching:	Research paper:	

Teaching and learning methods:

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	3	Written Test	
Participation in practicals	27	Practical exam	
Mid-term test (s)	5 + 5	Oral exam	60
Seminars			
Other			

Table 5.2 Subject specification

Study Programme: Integrated Studies of Dental Medicine	C19
Level of studies: Second	
Course: Pharmacology in Dentistry	
Course Leader (Name, middle letter, surname): Jelena Roganović	
Course status (compulsory/elective): Compulsory	
ECTS: 7	**Year of the study: III / 5th semester**
Entry requirements (passed exams from the previous years):	**Course code: ST20FARM**

Objectives of the course:
To train the students to make an optimal and safe pharmacotherapy plan in dental practice.

Outcomes of the course:
After successfully completing the course, the student should have:
- The knowledge and competence to make the optimal and safe choice of medicines in the treatment of oral diseases and medical emergencies in the dental practice in the way that the risks of side effects and drug interactions are minimized.
- The knowledge and understanding of the mechanisms of drug action, the fate of the drug in the body and the effects of drugs used in dentistry, as well as medicines that have a significant role in dentistry (which dental patients receive for medical reasons).
- The skills of adapting a pharmacotherapy plan to dental patients at risk and knowledge to pharmacologically prepare patients at risk (cardiovascular, patients with special needs, psychiatric patients, and children) for dental interventions.
- The competence to prescribe medicines in compliance with legal regulations.
- A critical attitude towards available electronic databases of medicines.

Contents of the course:
During the lectures and practicals students will be introduced to the basics of drug mechanisms of action, fate of drugs and effects of drugs used for oral and dental diseases, including the medicines important for dentistry (drugs which dental patients receive for medical reasons). Particular attention will be directed towards current pharmacotherapy protocols regarding the treatment of odontogenic and maxillofacial, periodontal and endodontic infections as well as oral mucosa diseases and competent drugs prescribing.

Recommended literature:
Dowd F, Johnson B, Mariotti A. Pharmacology and Therapeutics in Dentistry. 7th edition. St. Louis, Missouri:ElsevierInc; 2017.
Bertram G. Katzung B.G. and Trevor A.J. Basic and Clinical Pharmacology, 10th Edition McGraw Hill, New York, USA, 2007.

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 60	Practicals: 30	Other modes of teaching:	Research paper:	

Teaching and learning methods:

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	3		
Participation in practicals	27	Practical exam	15
Mid-term test (s)	7	Oral exam	45
Seminars	3		
Other			

Elective Block 3
New Technologies in the Prevention and Suppression of Solid Dental Tissue Lesions
Specificity of Oral Hygiene in Special Patient Groups
Prophylactic Measures in Restorative Dentistry
Physical Basis of Diagnostic and Therapeutic Methods
Saliva As a Diagnostic Fluid
Drug Abuse and Dental Practice
Etiopathogenesis of Oral Cavity Diseases
Molecular Mechanisms Involved in the Pathogenesis of Shock
Cellular and Molecular Mechanisms in the Pathogenesis of Atherosclerosis
Emergency Conditions in Internal Medicine and Dental Practice
Systemic Complications Caused by Oral infections
Emergencies in General Surgery
X-Ray Image Interpretation
Dental Biomechanics
Communication Skill In Dental Practice
Professional Ethics in Dentistry
Digital Photography
Color in Dentistry

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	3E1
Level of studies: Second	
Course: New Technologies in the Prevention and Suppression of Solid Dental Tissue Lesions	
Course Leader (Name, middle letter, surname): Jelena Č. Mandić	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: : III / 6th semester**
Entry requirements (passed exams from the previous years):	**Course code: : I_3_01**
Objectives of the course: Acquiring knowledge of modern technologies and modern medical systems in the prevention and therapy of hard dental tissues.	
Outcomes of the course: After completing the course and passing the exam, the student should be able to: - Gain knowledge of the processes of demineralization and remineralization of teeth and the possibility of reversing the caries process - Select a modern medicine and clinical protocol for the prevention and treatment of caries, erosion, tooth abrasion - Explain the possibility of applying bioactive slow release systems "Slow-Releasing Fluoride Device" and mineral calcium phosphate bioactive system ("CPP-ACP") - Recognize the clinical use of non-invasive modern technological procedures (Er-Nd Yag laser, Heal ozone, ICON) and minimally invasive preparation techniques (air abrasion, ultrasound)	
Content of the course: Definition and possibility of reversing the mineralization process using modern medicines, medicamentous bioactive systems and new modern technological procedures.	
Recommended literature: - Lee, Y.E., Baek, H.J., Choi, Y.H., Jeong, S.H., Park, Y.D., Song, K.B. Comparison of remineralization effect of three topical fluoride regimens on enamel initial carious lesions . *Journal of Dentistry*, 2010; 38 (2), 166-171. - Toumba, K.J., Al-Ibrahim, N.S., Curzon, M.E. A review of slow-release fluoride devices. *European archives of paediatric dentistry* 2009; 10 (3), 175-182. - Elsayad, I., Sakr, A., Badr, Y. Combining casein phosphopeptide-amorphous calcium phosphate with fluoride: synergistic remineralization potential of artificially demineralized enamel or not? *Journal of biomedical optics*, 2009; 14 (4), p. 044039. - Banerjee A, Thompson ID, Watson TF. Minimally invasive caries removal using bioactive glass air-abrasion. *J Dent.* 2011; 39(2): 2-7 - Lynch E.,Swift EJ: Evidence-based caries reversal using ozone. J. Esthet Restor Dent. 2006;20(4):218-221. White JM. Ablation rate, caries removal and restoration using Nd:YAG and Er:YAG lasers and air abrasion. J Adhe Dent.2011;13(1): 7-22.	

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussion, case review and analysis.			
Assessment (maximum number of points: 100)			
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals	20		
Mid-term test(s)			
Seminars			
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	3E2
Level of studies: Second	
Course: Specificity of Oral Hygiene in Special Patient Groups	
Course Leader (Name, middle letter, surname): Zoran T. Mandinić	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: III / 6th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_3_02**

Objectives of the course: Acquiring knowledge and skills related to the specificities of the application of oral hygiene products and techniques in special patient groups who are at high-risk for the development of dental caries and periodontal disease.

Outcomes of the course:
After completing the course, the students should be able to:
-Recognize local factors important for maintaining oral hygiene
-Relate local factors to the health of periodontal tissues
-Know the specific means for maintaining oral hygiene in special patient groups (patients with fixed orthodontic appliances, restorations, fixed prosthetic replacements, and implants)
-Select adequate means of maintaining oral hygiene as indicated
-Know the techniques of maintaining oral hygiene in special patient groups

Contents of the course:
Identification of local factors important for maintaining oral hygiene; specific features of oral hygiene products for specific patient groups; specific techniques for performing oral hygiene in specific patient groups; analysis and evaluation of knowledge in the field of application of oral hygiene products and techniques in orthodontic and prosthetically treated patients; developing a plan for motivation, remotivation and control of oral hygiene in patients at risk; recommendations for the preservation of hard and soft tissues of the oral cavity

Recommended literature:

1. Yankell SL, Saxer UP. Toothbrushes and Toothbrushing Methods. У: Harris NO, Garcia-Godoy F. Primary preventive dentistry. Sixt edition. Pearson Education, Inc., Pearson Prentice Hall, Upper Saddle River, New Jersey 07458, 2004. pp. 93-117.
2. Yankell SL, Fischman SL. Dentifrices, Mouthrinses, and Chewing Gums. У: Harris NO, Garcia-Godoy F. Primary preventive dentistry. Sixt edition. Pearson Education, Inc., Pearson Prentice Hall, Upper Saddle River, New Jersey 07458, 2004. pp. 119-144.
3. Tilliss TSI, Keating JG. Oral Health Self-Care Supplemental Measures to Complement Toothbrushing. У: Harris NO, Garcia-Godoy F. Primary preventive dentistry. Sixt edition. Pearson Education, Inc., Pearson Prentice Hall, Upper Saddle River, New Jersey 07458, 2004. pp. 145-179.

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods
Teaching is performed through a small group work and an interactive combination of brief theoretical remarks by the teacher, self-report to a group on a given topic based on previously analyzed literature, discussion on a given topic.

Assessment (maximum number of points: 100)			
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals	40		
Mid-term test(s)			
Seminars			
Other			

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	3E3
Level of studies: Second	
Course: Prophylactic Measures in Restorative Dentistry	
Course Leader (Name, middle letter, surname): Zoran T. Mandinić	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: III / 6th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_3_03**

Objectives of the course: Acquisition and application of knowledge and skills in terms of applying prophylactic measures in restorative dentistry.

Outcomes of the course:

After completing the course, the student should be able to:

-Recognize patients at high-risk for oral diseases (orthodontic patients, patients with restorations, dental surcharges and implants)

-Identify iatrogenic factors in the occurrence of oral diseases (inadequate dental reimbursement; incorrectly selected matrices, fillings, prosthetics)

-Know the measures of prophylaxis in the prevention of oral diseases in high-risk patients

-Develop an effective plan for motivation, remotivation and control of therapeutic outcomes achieved in high-risk patients

-Suggest recommendations for the preservation of hard and soft tissues in this specific group of patients

Content of the course:

Identification of patients at high-risk for the onset of oral diseases; identification of iatrogenic factors important for the health status of hard and soft tissues of the oral cavity; prevention measures for the occurrence of oral diseases in high-risk patients; the specificity of oral hygiene products for high-risk patients; the specifics of oral hygiene techniques in high-risk patients; measures of prophylaxis pertaining to the onset of oral diseases in high-risk patients; the use of prophylactic agents in high-risk patients (professional removal of soft deposits, air-polishing, removal of hard deposits); development of a plan of motivation, remotivation and control of achieved therapeutic results; recommendations for the preservation of hard and soft tissues of the oral cavity and dental restorations.

Recommended literature:

1. Yankell SL, Saxer UP. Toothbrushes and Toothbrushing Methods. U: Harris NO, Garcia-Godoy F. Primary preventive dentistry. Sixt edition. Pearson Education, Inc., Pearson Prentice Hall, Upper Saddle River, New Jersey 07458, 2004. pp. 93-117.
2. Yankell SL, Fischman SL. Dentifrices, Mouthrinses, and Chewing Gums. U: Harris NO, Garcia-Godoy F. Primary preventive dentistry. Sixt edition. Pearson Education, Inc., Pearson Prentice Hall, Upper Saddle River, New Jersey 07458, 2004. pp. 119-144.
3. Tilliss TSI, Keating JG. Oral Health Self-Care Supplemental Measures to Complement Toothbrushing. U: Harris NO, Garcia-Godoy F. Primary preventive dentistry. Sixt edition. Pearson Education, Inc., Pearson Prentice Hall, Upper Saddle River, New Jersey 07458, 2004. pp. 145-179.
4. Mulligan R, Sobel S. Preventive Oral Health Care for Compromised Individuals. U: Harris NO, Garcia-Godoy F. Primary preventive dentistry. Sixt edition. Pearson Education, Inc., Pearson Prentice Hall, Upper Saddle River, New Jersey 07458, 2004. pp. 559-588.
5. Yellowitz JA, Strayer MS. Geriatric Dental Care. U: Harris NO, Garcia-Godoy F. Primary preventive dentistry. Sixt edition. Pearson Education, Inc., Pearson Prentice Hall, Upper Saddle River, New Jersey 07458, 2004. pp. 589-603.

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals	40		
Mid-term test(s)			
Seminars			
Other			

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	3E4
Level of studies: Second	
Course: Physical Basis of Diagnostic and Therapeutic Methods	
Course Leader (Name, middle letter, surname): Đorđe I Stratimirović	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: III / 6th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_3_04**

Objectives of the course:
To get insights into the physical bases that underlie instrumental diagnostic methods.
Getting a broader picture of different diagnostic instruments and areas of their application. Understanding the effects of physical aspects on tissues and organs. Linking the ability to apply the diagnostic method to the physical properties on which it is based on. Understanding the functioning of diagnostic and therapeutic devices used in dental practice and proper interpretation of the results obtained. Getting to know the risks of using modern instruments for diagnostic and therapeutic methods.

Outcomes of the course:
After completing the class and passing the exam, the student should:
- know the methods for measuring mechanical and thermodynamic quantities
- know the theoretical basics of vibration and waves and recognize the usage of wave properties in diagnostic and therapeutic methods
- understand the principles of ultrasound diagnostics
- understand the use of electrical current in diagnostic and therapeutic techniques
- understand the principle of lasers and points out the possibilities of its application in dentistry
- understand what the spectrum of electromagnetic radiation is and differentiates between types of electromagnetic radiation
- recognize and distinguish between different spectroscopic techniques and their field of application
- differentiate between the types of ionizing radiation, including the area and methods of their application.

Contents of the course:
Methods for measuring macroscopic quantities. Wave theory and the wave model of matter. Mechanical waves and ultrasound. Electrical and magnetic methods of diagnosis and therapy. Electromagnetic waves and spectrum. Principles and fields of applications of different spectroscopic methods. Ionizing radiation and radiology. Fundamentals of nuclear diagnostics and therapies.

Recommended literature:
1. Newman J. Physics of the life sciences, Springer; 2008. 543-580, 603-651.
2. Aitken A. Mass spectrometric techniques. In: Principles and Techniques of Biochemistry and Molecular Biology. Edited by: Wilson K, Walker J. 7th edition, Cambridge University Press, Cambridge, 2010. Pages: 352-397.
3. Hofmann A. Spectroscopic techniques. In: Principles and Techniques of Biochemistry and Molecular Biology. Edited by: Wilson K, Walker J. 7th edition, Cambridge University Press, Cambridge, 2010. Pages: 477-551.
4. Slater R.J. Radioisotope techniques. In: Principles and Techniques of Biochemistry and Molecular Biology. Edited by: Wilson K, Walker J. 7th edition, Cambridge University Press, Cambridge, 2010. Pages: 553-580.
5. Van Meerbeek B, Vargas M, Inoue S, Yoshida Y, Perdigão J, Lambrechts P, Vanherle G. Microscopy investigations. Techniques, results, limitations. Am J Dent. 2000 Nov;13(Spec No):3D-18D.

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Oral defense of a project on a chosen topic	60
Participation in practicals			
Mid-term test(s)			
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine				3E5
Level of studies: Second				
Course: Saliva As a Diagnostic Fluid				
Course Leader (Name, middle letter, surname): Tatjana M Todorović				
Course status (compulsory/elective): Elective				
ECTS: 3			**Year of the study: III / 6th semester**	
Entry requirements (passed exams from the previous years):			**Course code: I_3_05**	
Objectives of the course: Acquiring knowledge of proper saliva sampling and the ways saliva can be used for diagnosing systemic and dental diseases, and for monitoring medicines, drugs, toxins and hormones				
Outcomes of the course: After completing the course and passing the exam, the student should be able to: - take saliva samples properly. - determine the concentration of biochemical parameters in saliva. - analyze the concentration of biochemical parameters in saliva. - assess the condition of periodontium and oral mucosa based on biochemical analyses of saliva. - assess the general condition of the patient based on the biochemical analyses of saliva. - assess the risk of dental caries based on the physical and chemical properties of saliva.				
Contents of the course: Methods of saliva sampling. Physical and chemical properties of saliva as risk indicators of dental caries. Possibilities of using saliva in diagnosis of periodontitis, oral cancer, diseases of the oral mucosa, infectious diseases, autoimmune diseases, and for monitoring medicines, drugs, toxins and hormones.				
Recommended literature: Daniel Malamud, Isaac R Rodriguez-Chavez. Saliva as a Diagnostic Fluid. Dent Clin North Am., 2011				
Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	
Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.				
Assessment (maximum number of points: 100)				
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**		
Participation in lectures		Written defense of a project on a chosen topic	60	
Participation in practicals		Practical exam		
Mid-term test(s)		Oral exam		
Seminars	40			
Other				

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	3E6
Level of studies: Second	
Course: Drug Abuse and Dental Practice	
Course Leader (Name, middle letter, surname): Jelena Roganović	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: III / 6th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_3_06**
Objectives of the course: To train students to recognize the signs of drug abuse and drug toxicity and understand their dental implications.	
Outcomes of the course: After successfully completing the course, the student should be able to: -Apply information about medicines obtained by critical review of available electronic databases in dental practice -Recognize the signs of drug toxicity in dental practice -Understand the plan of measures that should be taken in the treatment of drug toxicity -Appreciate potentially toxic interactions between nanomaterials used in dentistry and tissues -Understand the effects of drug abuse on oral tissues and implications for dental practice	
Contents of the course: Rational use and misuse of medicines; the effects of tobacco, alcohol, organic solvents and drug abuse on oral tissues; dental treatment in patients who abuse tobacco, alcohol, organic solvents and medicines; nanotoxicology; treatment of drug toxicity; relevant electronic databases of medicines.	
Recommended literature: Bertram G. Katzung B.G. and Trevor A.J. Basic and Clinical Pharmacology, 10th Edition McGraw Hill, New York, USA, 2007. (pages: 511-525; 934-971; 1041-1070; 1082-1095) Dowd F.J., Johnson B., Mariotti A. Pharmacology and Therapeutics for Dentistry, 7th edition Elsevier, Inc St. Louis, Missouri, USA, 2016. (pages: 584-620; 632-647; 650-655; 661-666)	

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals			
Mid-term test(s)			
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	3E7
Level of studies: Second	
Course: Etiopathogenesis of Oral Cavity Diseases	
Course Leader (Name, middle letter, surname): Maja P. Miletic	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: III / 6th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_3_07**

Objectives of the course:
Acquiring knowledge of the pathophysiological bases of immune system disorders, mechanisms of occurrence of changes in the oral region in various disorders of immunity and autoimmune diseases, etiopathogenesis of inflammatory processes in the oral region, the role of various mediators in the pathogenesis of inflammation of the dental pulp and periapical lesions, including the mechanisms of development of oral changes in various systemic diseases.

Outcomes of the course:
After completing the course and passing the exam, the student should be able to:
- Describe the basics of the defence of organism
- Relate oral changes to specific immune system disorders
- Explain the mechanism of damage to the structure and function of the tissue of the oral region in immunodeficiency
- Describe the oral manifestations that occur in various autoimmune diseases
- Explain the immuno-inflammatory aspect of inflammation of the dental pulp and periapical lesions
- Describe the mechanisms of occurrence of changes in the oral region in diseases of different organs and organ systems

Contents of the course:
Basics of non-specific and specific defense of organisms; disorders of non-specific defenses and changes in the oral region; congenital and acquired immunodeficiencies; pathogenesis of oral changes in immunodeficiency; mechanisms of oral manifestations in autoimmune diseases, etiopathogenesis of inflammation of the dental pulp and apical periodontium; the role of biologically active molecules, cytokines and chemokines in the inflammatory process; mechanisms of oral changes in various systemic diseases.

Recommended literature:

1. Cooper PR, Smith AJ. Molecular mediators of pulp inflammation and regeneration. Endodontic Topics, 2013, 28, p. 90–105.
2. Saccucci M, Di Carlo G, Bossù M, Giovarruscio F, Salucci A, Polimeni A. Autoimmune Diseases and Their Manifestations on Oral Cavity: Diagnosis and Clinical Management. J Immunol Res. 2018 May 27;2018:6061825.
3.Garlet G, Andreza MF, Aranha, Elcia M. Et al. The Role of Chemokines and Cytokines in the Pathogenesis of Periodontal and Periapical Lesions In: DrMahin Khatami. Current Concepts, Inflammation, Chronic Diseases and Cancer - Cell and Molecular Biology, Immunology and Clinical Bases, InTech, 2012. p. 219-241.
4. Atkinskon JC. Immunologic Diseases. In:Greenberg MS, Gloch M, Skip JA. Burket's Oral medicine. BC Decker, Ontario, 2008. p. 435-459.
5. Patton LL. Hematologic diseases. In:Greenberg MS, Gloch M, Skip JA. Burket's Oral medicine. BC Decker, Ontario, 2008. p. 385-434.

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	3E8
Level of studies: Second	
Course: Molecular Mechanisms Involved in the Pathogenesis of Shock	
Course Leader (Name, middle letter, surname): Maja P. Miletic	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: III / 6th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_3_08**

Objectives of the course:
Acquiring knowledge of the etiopathogenesis of shock, the underlying disorders of microcirculation in shock, hypoxia and postischemic cell damage, the molecular mechanisms involved in shock pathogenesis, the importance of cytokines and free radicals in shock, and systemic consequences.

Outcomes of the course:
After completing the course and passing the exam, the students should be able to:
- Describe the causes and pathophysiological bases of shock
- Differentiate between different forms of shock
- Associate microcirculation failure with cellular changes and disorders
- Describe the metabolic and biochemical consequences of cellular hypoxia
- Explain immuno-inflammatory events and the role of oxidative stress in the pathogenesis of shock
- Relate pathophysiological events in shock to disorders of different organs and organ systems

Contents of the course:
Definition, etiologic factors and shock classification; pathogenesis of shock syndrome; pathophysiological characteristics of microcirculation in shock; metabolic and biochemical consequences of reversible and irreversible hypoxic cellular injury; return injury; systemic inflammatory response, signaling cascade and the role of biologically active molecules in the pathogenesis of hemorrhagic and septic shock, shock complications and multi-organ dysfunction syndrome.

Recommended literature:

1. Pop-Began V, Păunescu V, Grigorean V, Pop-Began D, Popescu C. Molecular mechanisms in the pathogenesis of sepsis. Journal of Medicine and Life Volume 7, Special Issue 2, 2014. p. 38-41
2. Ganong WF. Shock. У: McPhee SJ, Ganong WF. Pathophysiology of disease. The McGraw-Hill Companies, New York, 2006. p.322-325.
3. Thomovsky E, Johnson PA. Shock pathophysiology. Compend Contin Educ Vet. 2013;35(8):E2.
4. Hubert R.J., VanMeter K.C., GOULD'S Pathophysiology for the Health Professions. 6th Edition. Elsevier Science, Amsterdam, Netherlands, 2018.
5. Porth C. Essentials of Pathophysiology: Concepts of Altered States. LWW Lippincott Williams and Wilkins, Philadelphia, Pennsylvania, United States 2018

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals			
Mid-term test(s)			
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	3E9
Level of studies: Second	
Course: Cellular and Molecular Mechanisms in the Pathogenesis of Atherosclerosis	
Course Leader (Name, middle letter, surname): Maja P. Miletić	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: III / 6th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_3_09**

Objectives of the course:
Within this elective course, students will be introduced to the contemporary knowledge related to the factors that contribute to the initiation and progression of atherosclerosis, the dynamics of atherosclerosis, the molecular and cellular mechanisms of atherogenesis, and the consequences of atherosclerotic lesions.

Outcomes of the course:
After completing the course and passing the exam, the student should be able to:
- Describe the scientific basis of atherosclerosis
- Know the risk factors for atherosclerosis
- Explain the immune aspect of atherosclerosis and the role of biologically active molecules in atherogenesis
- Recognize the importance of disorders of molecular and cellular functions in the pathogenesis of atherosclerosis
- Describe the effects of atherosclerosis and link them to coronary disease and cerebral infarction

Contents of the course:
Atherosclerosis in the light of existing scientific theories; factors that stimulate the development of atherosclerosis; diabetes and atherosclerosis; the role of lipids in the initiation and progression of atherosclerosis, endothelial dysfunction and inflammation in atherosclerosis; the role of cytokines and growth factors in atherogenesis; oxidative stress in atherogenesis; fibrous plaque and the role of foam cells in atherosclerotic hearth; advanced lesions of atherosclerosis and its complications.

Recommended literature:
1. Mota R, Homeister JW, Willis MS, Bahnson EM. Atherosclerosis: Pathogenesis, Genetics and Experimental Models. In: eLS. John Wiley & Sons, Chichester, 2017. p. 1-10.
2. Alain Tedgui. Cytokines and atherosclerosis.In: Atherosclerosis: Molecular and Cellular Mechanisms. Wiley online library, 2010. p. 63-84.
3. Hubert R.J., VanMeter K.C., GOULD'S Pathophysiology for the Health Professions. 6th Edition. Elsevier Science, Amsterdam, Netherlands, 2018.
4. Huether S.E., McCance K.L. Understanding Pathophysiology, 6th Edition. Elsevier Science, Amsterdam, Netherlands, 2016.
5. McCance K.L., Huether S.E.. Study Guide for Pathophysiology: The Biological Basis for Disease in Adults and Children, 8th Edition. Elsevier Science, Amsterdam, Netherlands, 2018.

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching 30:	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals			
Mid-term test(s)			
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study Programme: Integrated Studies of Dental Medicine				3E10
Level of studies: Second				
Course: Emergency Conditions in Internal Medicine and Dental Practice				
Course Leader (Name, middle letter, surname): Milan D.Brajovic				
Course status (compulsory/elective): Elective				
ECTS: 3			**Year of the study: III / 6th semester**	
Entry requirements (passed exams from the previous years):			**Course code: I_3_10**	
Objectives of the course: To enable students to recognize emergency situations in the field of internal medicine so that the risks of adverse effects during dental interventions are minimized.				
Outcomes of the course: After successfully completing the course, the student should be able to: • Recognize an urgent condition based on the symptoms • Explain the etiology and pathophysiology of the emergency • Have knowledge of the most important diagnostic methods for confirming an emergency • Have knowledge of the therapeutic procedures required for immediate treatment of patients • Know the potential complications of emergencies that have a direct impact on dental interventions.				
Contents of the course: Acute myocardial infarction with complications, treatment and prevention, impact on dental practice. Unstable angina: complications and treatment, prevention, impact on dental practice. Acute heart failure, pulmonary edema: clinical picture, treatment, prevention. Infectious endocarditis: clinical picture, complications and treatment, prevention, impact on dental practice. Acute cardiac arrest: signs, treatment, valvular heart diseases - mitral stenosis and insufficiency, clinical characteristics picture, treatment, complication of anticoagulant therapy, impact on dental practice, Tachycardia and bradycardia symptoms treatment and complications, hypertensive crisis, symptoms, complications, treatment, prevention. Acute pulmonary embolism: complication symptoms, prevention, impact on dental practice Digestive tract bleeding: symptoms, treatment, prevention. Hyperglycemic and acute hypoglycemic conditions: symptoms, treatment and prevention. Anaphylactic shock: symptoms, complications, treatment, impact of dental practice.				
Recommended literature: Harrison's Principles of Internal Medicine, International Edition				
Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	
Teaching and learning methods: Teaching methods include small group work, an interactive combination of brief theoretical remarks by the teacher, self-report to a group on a given topic based on previously analyzed literature, discussion on a given topic, and analysis of given clinical cases.				

Assessment (maximum number of points: 100)			
Pre-exam requirements40	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	20	Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars			
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	3E11
Level of studies: Second	
Course: Systemic Complications Caused by Oral Infections	
Course Leader (Name, middle letter, surname): Nataša D. Petrović-Stanojević	
Course status (compulsory/elective): ELECTIVE	
ECTS: 3	**Year of the study: III / 6th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_3_11**

Objectives of the course: Gaining knowledge of the concept of the so-called focal infection theory. The pathogenesis of focal diseases is classically attributed to dental pulp pathologies and periapical infections. In recent years, there has been an increasing interest in the possible links between periodontal infection and systemic diseases. Periodontal pathogens and their products, as well as inflammatory mediators produced in periodontal tissues, can cause systemic effects and / or contribute to systemic diseases.

Outcomes of the course: After completing the course and passing the exam, the student should be able to:
- Describe the anatomical and pathophysiological bases of focal infections of the dental pulp and periapical infections
- understand how inflammatory mediators and periodontal pathogens can affect the body
- identify and recognize risk factors for adverse course of focal infection and develop an adequate treatment plan for such patients
- plan diagnostic algorithms to identify such conditions
- adopt the concept of a multidisciplinary approach to treating these patients

Contents of the course: Chronic periodontitis as a risk factor for cardiovascular and respiratory diseases, preterm birth, rheumatoid arthritis, osteoporosis, pancreatic cancer, metabolic syndrome, renal and some neurodegenerative diseases; Various hypotheses, including general susceptibility, systemic inflammation, direct bacterial infection and cross-reactivity, and / or molecular mimicry between bacterial and auto-antigens; Introduction to the concept of periodontal medicine – the correlation of periodontal disease with systemic diseases to explain these mechanisms; The most important diagnostic procedures for identifying such conditions.

Recommended literature:

1.Gustav Guimarães, Mariane M. Azuma, Maria R. F. S. G. Guimarães, Eloi Dezan-Júniorand Luciano T. A. Cintra. Current Concepts about Periodontal Disease And Relationship with Systemic Diseases. In: Wallace editor. Periodontal disease-diagnosis, management, options and clinical feature, Nova Science Publishers, Inc New York 2016;
2.Advances in periodontal surgery: a clinical guide to techniques and interdisciplinary approaches (ProQ)S. Nares (Editor) Springer, 2019
3.Clinical cases in periodontics (ProQ) N. Karimbux, Wiley-Blackwell, 2012
4.Clinical periodontology and implant dentistry, 6th Edition (ProQ) J. Lindhe et al. Wiley-Blackwell, 2015

Total number of classes of active teaching and learning: 30				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching :30	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	3E12
Level of studies: Second	
Course: Emergencies in General Surgery	
Professor in charge: Bojan Kovacevic	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: III / 6th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_3_12**
Objectives of the course: To introduce students to common and significant urgent conditions in the field of general surgery.	
Outcomes of the course: After completing the course and passing the exam, the student should be able to: -adequately and promptly perform a history and clinical examination of the patient in the emergency department -recognize common diagnostic procedures (laboratory analysis, ultrasound, X-ray, CT, MRI) and their application in surgical emergencies -perform resuscitation measures and provide first aid to trauma patients -perform the basic methods for haemostasis in external bleeding -recognize patients in a state of shock -recognize patients with sepsis -recognize acute abdomen, ileus, appendicitis, pancreatitis, icterus -recognize disorders of the peripheral vascular system -recognize complicated skin and skin structure infections	
Contents of the course: Medical history and physical examination of patients on emergency department; common diagnostic procedures; resuscitation measures; hypovolemic shock prevention and treatment; acute abdomen; ileus; acute pancreatitis; pneumothorax; mechanical icterus; acute ischemia of extremities; peripheral vascular disorders; complicated skin and skin structure infections; complicated intra-abdominal infections; sepsis	
Recommended literature: Chris Callaghan, J. Andrew Bradley and Christopher Watson, Emergencies in Clinical Surgery. Oxford University Press. September 2008 p. 1-576	

Total number of classes of active teaching and learning: 30				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods: Seminars, interactive discussions, case reviews

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study Programme: Integrated Studies of Dental Medicine				3E13
Level of studies: Second				
Course: X-Ray Image Interpretation				
Course Leader (Name, middle letter, surname): Biljana Marković Vasiljković				
Course status (compulsory/elective): Elective				
ECTS: 3		**Year of the study: III / 6th semester**		
Entry requirements (passed exams from the previous years):		**Course code: I_3_13**		
Objectives of the course: The objective of the course "X-ray Image Interpretation" is to upgrade and broaden the student's knowledge of X-ray image analysis and interpretation in order to make a differential diagnosis.				
Outcomes of the course: After completing the course and passing the exam, the student should be able to: - adopt the parameters of technically correct analogue / digital X-ray image record that can be interpreted - identify normal anatomical structures and tissues observed on intra- and extraoral images - identify the effects that can cause false positive and false negative image interpretations. - Student will adopt, step by step, elements of pathological X-ray image analysis. - Student will acquire knowledge of digital X ray image post-processing and presentation in 2D and 3D modes. - Based on the analysis of the obtained data, the students will be able to interpret findings and make a differential diagnosis.				
Contents of the course: Definition and creation of an X-ray image, analog and digital recording methods. Normal radiological anatomy, composition and grading of dental, bone and soft tissue on intraoral and extraoral radiographs. Differentiation of pathological shadows and lucencies. Elements of pathological x-ray findings analysis: localization, shape, size, intensity, homogeneity, relationships and boundaries to the surroundings. Describing and interpreting x-ray data in accordance with referral diagnosis and clinical symptoms. Typical and less typical x-rays presentation of inflammatory, tumor, metabolic and systemic diseases. Radiological reporting and differential diagnosis.				
Recommended literature: 1.Boland GW, Enzmann DR, Duszak RJr. Actionable reporting. J Am Coll Radiol 2014; 11(9): 844–845. Atten Percept Psychophys. 2010 Jul; 72(5) 2.Krupinski E.A. Current perspectives in medical image perception. Atten Percept Psychophys. 2010 Jul; 72(5): 1-30. 3.Srivastava R. M. Step by step. Oral radiology. JBMP.2011. -448 pages 4.Koong.B. Atlas of oral and maxillofacial radiology. Wiley Blackwell.2017. – 367 pages				
Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	
Teaching and learning methods				
Assessment (maximum number of points: 100)				
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**		
Participation in lectures		Written defense of a project on a chosen topic		60
Participation in practicals		Practical exam		
Mid-term test(s)		Oral exam		
Seminars	20			
Other	20			

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	3E14
Level of studies: Second	
Course: Dental Biomechanics	
Course Leader (Name, middle letter, surname): Aleksandra M Milić Lemić	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: III / 6th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_3_14**
Objectives of the course: Introducing students to the basic principles of dental biomechanics, the pattern of occlusal loading distribution and reactions of teeth, dental restoration and implants to occlusal loading.	
Outcomes of the course: After successfully completing the course the student should: - Understand the biomechanical principles of tooth behavior after occlusal loading - Be familiar with the bone and tissue response to occlusal loading - Be able to apply the acquired knowledge to the clinical courses dedicated to prosthodontics	
Contents of the course: Loading, stress and strain, bone tissue response to loading. The occlusal loading distribution. Teeth and biomechanical behavior after loading. Periodontal ligament and occlusal loading. Biomechanical principles of occlusion. Different concepts of occlusion and their biomechanical aspects. Biomechanical principles of removable and fixed prosthodontics. Biomechanical aspects of implants and implant restorations.	
Recommended literature: Arturo N Natali Dental Biomechanics Taylor & Francis 2003 pages. 1-17; 20-33; 240-253	

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)			
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	3E15
Level of studies: Second	
Course: Communication Skills In Dental Practice	
Course Leader (Name, middle letter, surname): Ivica Z. Stančić	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: III / 6th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_3_15**
Objectives of the course: Acquiring knowledge of the forms and means of communication in dentistry. Specific communication knowledge Dentist - Patient, Dental Nurse - Patient, Dentist - Dental Nurse and Dentist - Other Healthcare Professionals.	
Outcomes of the course: After completing the course and passing the exam, the student should: - be able to successfully establish a contact with the patient, colleagues, and other members of the dental team, - possess professional skills in communication with patients, colleagues and the public, - resolve conflicts at all levels of communication.	
Contents of the course: Communication (definition, types, communication styles). Form of successful communication. Psychological preconditions for establishing communication. Basic communication skills. Verbal and nonverbal communication with the patient. Dimensions and aspects of non-verbal communication. The importance of non-verbal communication, body language. Tolerance as a precondition for successful communication. Types of personality structures of patients. Initial contact with a patient. Personality types. Conflict resolution strategy at all communication levels. Non-violent communication. Required characteristics of a health care professional and rules of good communication. Communication between medical professionals. Ethical decision making - basic principles. Patient's consent to interventions in dentistry. Basic principles of working with functionally dependent patients, patients of different ages, degrees of education, chronic patients, and patients with impaired hearing and vision. Teamwork in dentistry. Importance of keeping and saving medical records in clinical work.	
Recommended literature: Compulsory: (total 124 pages) 1. J. Brown,L.M.Noble,A., Papageorgion,J.Kidd.Clinical Communication in Medicine, Willey Blackwell,2015 (5-56 p;138-143p;151-154p) 2. S.Kurtz,J.Silverman,J.Draper.Teaching and Learning Communication Skills in Medicine,2nd Ed.,CRC Press,2016.(13-56p;185-207p.)	

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.			
Assessment (maximum number of points: 100)			
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	3E16
Level of studies: Second	
Course: Professional Ethics in Dentistry	
Course Leader (Name, middle letter, surname): Vesna B. Medic	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: III / 6th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_3_16**

Objectives of the course:
Introducing students to: morality, general ethical principles and rules related to medical ethics, basic ethical principles in dentistry, moral rules of a dentist's behavior towards patients and colleagues, ethical aspects of scientific research and research on humans.

Outcomes of the course: After completing the course, the student is trained to:
- explain the basic principles of ethics and morality
- recognize ethical dilemmas in dentistry
- make ethical decisions based on theoretical knowledge and moral reasoning
- improve and use the acquired knowledge in their practice

Contents of the course:
Ethics, morality and professionalism, classical and contemporary ethical principles; ethical principles in dentistry ethics; morality and professionalism; ethical principles in dentistry; ethical dilemmas and issues faced by dentists (how a dentist perceives the problem and solves it); the most important (general) ethical principles and rules: avoid harming the patient, doing well, patient autonomy, informing the patient. Other ethical principles: the principle of justice, the principle of truthfulness, principle of loyalty, principle of confidentiality. Relationship between a doctor and a patient. Moral rules of behavior – the doctor towards the patient.
Ethical principles and communication between the dentist and patients with specific diseases: psychiatric patients, patients with special needs, children, elderly patients, patients suffering from infectious diseases. Ethical principles of research on humans, ethics in scientific research. Applying marketing principles in a private dental practice.

Recommended literature:
James T. Rule, Robert M. Veatch, Ethical Questions in dentistry, Quintessence Publishing Co, Inc, 2004. pp. 211-258
ADA Principles of Ethics and Code of Professional Conduct
https://www.ada.org › about-the-ada › principles-of-et.
5051 FDI Dental Ethics Book - FDI World Dental Federation
https://www.fdiworlddental.org › media › resources

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals			
Mid-term test(s)			
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	3E17
Level of studies: Second	
Course: Digital Photography	
Course Leader (Name, middle letter, surname): Aleksandar B Todorovic	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: III / 6th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_3_17**

Objectives of the course:
To gain a basic knowledge of digital cameras, how they are used and their application in clinical practice. To gain knowledge of photography - how it was created. Data processing and storage. Protocols and techniques for intraoral photography. Extraoral photography protocols and techniques. Digital photo processing and data storage. Specificity of photography techniques in orthodontics. Specific features of photography techniques in oral and periodontal surgery.

Outcomes of the course:
After completing the course and passing the exam, the student should be able to:
- Describe the basic features of digital cameras and how they are used.
- Describe how digital photography can be stored.
- Explain the protocol for intraoral photography.
- Explain the protocol for extraoral photography.
- Describe photography techniques in oral surgery and orthodontics.

Contents of the course:
Photo definition and basic parameters, physical characteristics of photography. Different types of digital cameras, photography techniques, photography equipment. Intraoral photography, camera setup, photography technique. Extraoral photography, camera setup, photography technique. Programs for digital image processing, methods for storing digital photos.

Recommended literature:
1. Ahmad I. Digital Dental Photography. Part1; An Overview. Br Dental J 2009;206:403-407.
2. Bengel W, Devigus A. Preparing Images for Publication: Part 2. Eur J Esthet Dent 2006;1:112-127.
3. Bengel W, Devigus A. Preparing Images for Publication: Part 4. Choosing a Camera. Br Dent J 2009;206:575-581.
4. Ang T. Fundamentals of Photography. New York: Knopf, 2008. 20-50: 76-80.

Total number of classes of active teaching and learning: 30				Professional practice/independent work:
Lectures:30	Practicals:	Other modes of teaching :30	Research paper:	

Methods of teaching : Working in small groups, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	3E18
Level of studies: Second	
Course: Color in Dentistry	
Course Leader (Name, middle letter, surname): Aleksandar Todorovic	
Course status (compulsory/elective): elective	
ECTS: 2	**Year of the study: III / 6th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_3_18**

Objectives of the course:
Acquiring knowledge of physical characteristics of color, procedures for determining the color of teeth, dental restorations and restorations made of different types of restorative materials, instruments and methods for color determination in clinical and laboratory conditions, color reproduction techniques using different dental materials, the persistence of color compensation and the impact of the environment on the overall experience of color.

Outcomes of the course:
After taking the course and passing the exam, the student should be able to:
- Describe the basic physical characteristics of color.
- Determine the tooth color and color of dental restorations in clinical and laboratory condition.
- Determine the tooth color applying visual methods for determining the tooth color.
- Explain color reproduction techniques for making dental restorations of different types of building materials
- Describe how environments and external factors affect the overall color experience.

Contents of the course:
Color definition and basic color parameters; color as a physical phenomenon; color reproduction; factors that influence the perception and determination of tooth color; conventional determination of color and dental restoration; digital determination of tooth color and dental restorations; color determination protocol; the role of digital photography in color determination; color of dental materials - their compatibility, stability and interaction, color of permanent teeth in young persons; color in the treatment of hypermineralized teeth.

Recommended literature:

1. Stephen J.J Chu, Alessandro Devigus, Rade D. Paravina, Adam J. Mieleszko Fundamentals of Color. Quintessence Publishing. 2010. 20-40; 42-56:57-74.
2. Dental Collor Master training Program http://www.scadent.org./
3. Paravina RD. Performance assessment of dental shade guides. J Dent 2009. 37s.e.15-e.20.
4. Ahmad I. Digital dental photography. Part 5: Lighting. Br Dent J 2009. 207: 13-18.
5. Devigus A. Die digitale Farbmessung in der Zahnmedizin. Quintessence 2003:54; 495-500.

Total number of classes of active teaching and learning: 30				Professional practice/independent work:
Lectures:30	Practicals:	Other modes of teaching :30	Research paper:	

Teaching and learning methods

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	3	Written defense of a project on a chosen topic	60
Participation in practicals	27	Practical exam	
Mid-term test(s)		Oral exam	
Seminars	10		
Other			

Table 5.2 Subject specification

Study programme: **Integrated Studies of Dental Medicine**	C20
Level of studies: Second	
Course: Anesthesia in Dentistry and Basic Principles of Oral Surgery	
Course Leader (Name, middle letter, surname): Radojica V Drazic	
Course status (compulsory/elective): Compulsory	
ECTS: 7	**Year of the study: IV / 8th semester**
Entry requirements (passed exams from the previous years):	**Course code: ST20ANES**

Objectives of the course: The most important goal of this course is to equip students with the knowledge and skills necessary for the application of local anesthesia and tooth extraction. The students should be trained to perform the techniques of terminal anesthesia in the upper and lower jaw, and mandibular anesthesia on their own. The students should be able to apply local anesthesia to patients at risk, in other dental disciplines, and to recognize and treat possible local and general complications of local anesthesia. In addition, the student should take a medical history, perform a clinical examination, synthesize the obtained data, and diagnose the most common dental diseases. In addition, the students will learn how to recognize the most common indications for tooth extraction. The students are required to learn the stages of tooth extraction and to master the techniques of extracting individual teeth in the upper and lower jaws. The student is obliged to learn and master the procedures of asepsis and antisepsis in oral surgery, and learn the stages of normal wound healing after tooth extraction.

Outcomes of the course:
After taking the course and passing the exam, the student should:
- have a deep understanding of the methods for pain control in dental practice, i.e. the benefits provided by isolated local anesthesia, the combined use of local anesthesia and pharmacosediation, and be familiar with the application of general anesthesia in dental practice.
- know the properties of individual local anesthetic solutions, and the use of local anesthetic solutions
- administer infiltration anesthesia in the upper and lower jaws, administer mandibular anesthesia and other terminal and block anesthesia in the jaws on their own.
-be fully capable of selecting an adequate local anesthetic solution in at-risk patients.
- demonstrate knowledge of the practical application of local anesthesia in each of the dental disciplines and know the indications, advantages and disadvantages of individual methods of local anesthesia, -prevent, recognize, and cure any complications of local anesthesia (local and general),
-take the patient's history on their own, perform a clinical examination and diagnose the most common dental diseases,
- choose the appropriate instruments for tooth extraction,
- perform tooth extraction of individual teeth in the upper and lower jaws on his own; learn and implement asepsis and antisepsis procedures in oral surgery,
- recognize the phases of normal wound healing of alveolar socket after tooth extraction.

Contents of the course: Local anesthetic solutions; relevant anatomy; topical, local, general anaesthesia, analgesia and sedation and its combination. Techniques of infiltration and block anesthesia in upper and lower jaw. Complications of local anesthesia. Local anesthesia in risk patients and in other dental disciplines. Tooth extractions: indications, instruments, techniques, and wound healing after tooth extractions.

Recommended literature:
Malamed SF. HANDBOOK OF LOCAL ANESTHESIA, SEVENTH EDITION. Copyright © 2020, Elsevier Inc.

Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals: 45	Other modes of teaching:seminars	Research paper:	45

Teaching and learning methods:

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	3	Written Test	
Participation in practicals	27	Practical exam	20
Mid-term test (s)		Oral exam	*40*
Seminars	10		
Other			

Table 5.2 Subject specification

Study Programme: Integrated Studies of Dental Medicine	C21
Level of studies: Second	
Course: Restorative Odontology	
Course Leader (Name, middle letter, surname): Vesna J. Miletić	
Course status (compulsory/elective): Compulsory	
ECTS: 10	**Year of the study: IV / 7th and 8th semesters**
Entry requirements (passed exams from the previous years): /	**Course code: ST20REOD**

Objectives of the course:
Acquiring knowledge and skills for independent diagnostics and treatment of lesions of hard dental tissues using adequate methods, materials and instruments of modern restorative dentistry.

Outcomes of the course:
Upon successful completion of the course, students should be able to:
- explain pulp-dentin complex and its defense mechanisms,
- use equipment and instruments in the dental practice,
- record patient's dental and medical history, perform clinical examination, establish diagnosis and treatment plan,
- explain and perform all types of cavity preparation, retention and restoration options according to gnathological principles, and use contemporary materials, instruments and equipment for permanent restorations,
- explain and perform all treatment options for pulp vitality preservation in deep caries and trauma cases,
- explain and analyze methods for cavity preparation and impression taking, indirect restoration production and cementation (metal and esthetic), and advantages over direct restorations,
- explain biophysical changes in and analyze principles of restoration of endodontically treated teeth,
- explain the options and agents for bleaching vital and non-vital teeth and analyze esthetic effects, potential complications and limitations of such procedures

Contents of the course:
Pulp-dentin complex and its defense mechanisms, caries, noncarious lesions, trauma, exposed pulp, introduction to clinical practice of restorative dentistry, teamwork, workflow, tooth isolation, minimally invasive procedures in restorative dentistry, materials for management of deep caries and exposed pulp, restorative procedure, matrix systems, materials for permanent restorations, materials for temporary fillings, glass-ionomer cements, adhesive systems, composite materials, amalgam, restorative procedure in anterior teeth, restorative procedure in posterior teeth, polymerization of resin-based materials, light-curing units, clinical procedure for indirect restorations, CAD-CAM of indirect restorations, restoration repair, restoration endodontically treated teeth, tooth bleaching.

Recommended literature:
Živković S, editor. Principles of restorative dentistry. 2nd ed. Belgrade: Data Status; 2019. 356 pages.

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals: 135	Other modes of teaching:	Research paper:	45

Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.

Teaching and learning methods:

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	3	Written Test	20
Participation in practicals	27	Practical exam	10
Mid-term test (s)	6	Oral exam	30
Seminars	4		
Other			

Table 5.2 Subject specification

Study Programme: Integrated Studies of Dental Medicine	C22
Level of studies: Second	
Course: Removable Prosthodontics	
Course Leader (Name, middle letter, surname): Aleksandra M MilićLemić	
Course status (compulsory/elective): Compulsory	
ECTS: 10	**Year of the study: IV / 7th and 8th semesters**
Entry requirements (passed exams from the previous years):	**Course code: ST20MOBI**
Objectives of the course: Obtaining the theoretical and practical knowledge required for independent performance of clinical procedures in removable prosthodontics, including the proper use of modern dental materials, equipment and instruments.	
Outcomes of the course: After successfully completing the course, the students should: -Understand the changes in the orofacial system after tooth loss -Demonstrate the theoretical knowledge about the clinical procedures in manufacturing complete dentures, partial acrylic and removable partial dentures. -Be trained to realize the preliminary and final impressions, determine jaw relations and perform the teeth set-up. -Be capable of delivering complete and partial dentures, giving instructions to the patients and perform later check-ups. -Be introduced to clinical procedures in manufacturing complex partial dentures with precision elements or double crowns -Have the theoretical knowledge of producing overdentures and implant-supported removable dentures	
Contents of the course: Focusing on the manipulation of dental materials most commonly used in the dental office, theoretical lectures also discuss the basic scientific approach to clinical procedures in complete denture and removable partial denture fabrication. The course is also concerned with the patients' general and oral health, diagnosis and therapy options and planning. General steps like choosing the proper impression tray, impression taking and all others are performed in different patients during different clinical cases. The students will also learn about the rationale in RPD framework designs, communication with the laboratory technicians and dental assistants. At the end of the course the students are introduced in specific types of dentures including overdentures and implant supported removable dentures.	
Recommended literature: Zarb GA, Bolender CL, Carlsson GU. Boucher's Prosthodontic Treatment for edentulous Patients. Mosby 11th Edition 539 p McGivney GP, Carr AB McCracken's Removable Partial Prosthodontics Mosby 10th Edition 475 p	
Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.	

Total number of classes of active teaching and learning:				Professional practice/ independent learning: 60
Lectures: 30	Practicals: 180	Other modes of teaching:	Research paper:	
Teaching and learning methods:				

Assessment (maximum number of points: 100)			
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	3	Written Test	
Participation in practicals	27	Practical exam	20
Mid-term test (s)	10	Oral exam	40
Seminars			
Other			

Table 5.2 Subject specification

Study Programme: Integrated Studies of Dental Medicine	C23
Level of studies: Second	
Course: Preclinical Fixed Prosthodontics	
Course Leader (Name, middle letter, surname): Ljiljana Đ Tihaček Šojić	
Course status (compulsory/elective): Compulsory	
ECTS: 7	**Year of the study: IV/ 7th semester**
Entry requirements (passed exams from the previous years):	**Course code: ST20FPRO**

Objectives of the course:
Obtaining theoretical and practical knowledge of the technical and technology procedures in manufacturing different types of fixed restorations (crowns and bridges)

Outcomes of the course:
After successfully completing the course, the student should be:
-Able to perform diagnostic wax-up,
-Capable of modeling different wax restorations such as full crowns, cast post and core, metal coping of porcelain fused to metal
-Familiar with laboratory procedures employed in manufacturing different fixed restorations.
-Introduced to modern materials used in fabricating fixed restorations

Contents of the course:
The lectures provide dental students with a foundation necessary to understand the basic principles of fixed prosthodontics, basic science, followed by practical step-by-step laboratory applications. The theoretical lectures focus on laboratory procedures but involve introduction to clinical sessions. The practicals are organized as a systematic follow-up of laboratory procedures in manufacturing different types of fixed restorations. The course covers most modern materials used in fabricating fixed restorations from wax to metal alloys.

Recommended literature:
Rhoads JE, Rudd KD, Morrow RM, Dental laboratory procedures. Fixed partial dentures. Mosby Inc; Subsequent edition. 489p

Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.

Total number of classes of active teaching and learning:				
Lectures: 15	Practicals: 45	Other modes of teaching:	Research paper:	Professional practice/ independent learning: 30

Teaching and learning methods:

Assessment (maximum number of points: 100)			
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	3	Written Test	30
Participation in practicals	27	Practical exam	30
Mid-term test (s)	10	Oral exam	
Seminars			
Other			

Table 5.2 Subject specification

Study Programme: Integrated Studies of Dental Medicine	C24
Level of studies: Second	
Course: Oral Medicine	
Course Leader (Name, middle letter, surname): Saša S. Čakić	
Course status (compulsory/elective): Compulsory	
ECTS:7	**Year of the study: IV / 7th semester**
Entry requirements (passed exams from the previous years):	**Course code:ST20ORME**

Objectives of the course:
To strengthen the students' capacities by equipping them with the skills and knowledge required for a comprehensive interdisciplinary approach to the diagnosis, planning and implementation of treatment regarding the patients with pathologies involving oral medicine.

Outcomes of the course:
After successfully completing the course, the student should be qualified to:
- Asses medical history
- Conduct clinical examination
  recognition of symptoms and signs of oral diseases
  recognition of oral manifestations of systemic diseases
  recognition of symptoms and signs of premalignant and malignant diseases
- Carry out diagnostic procedures
- Analyze and interpret medical records
- Make a treatment plan
- Explain to patients the assessment of their problems and the plan for further testing and treatment
- Perform clinical procedures (prevention and treatment)
- Diagnose medical emergencies and administer appropriate medications
- Perform emergency interventions

Contents of the course:
Diagnostic methods in oral medicine, Oral manifestations of infections: bacterial (non-specific, specific, fungal,viral), Hereditary and developmental anomalies of oral mucosa, Oral manifestations of human immunodeficiency virus (HIV) infection / Acquired Immune Deficiency Syndrome (AIDS), Oral diseases as a result of sexual contact, Diseases of the lips, Diseases of the tongue, Salivary gland diseases, Oral mucosal injuries caused by physical, chemical, thermal, radiation agents as well as bad habits, Oral ulceration, Afte, Oral manifestations of systemic diseases (gastrointestinal, haematological, cardiovascular, respiratory, endocrine, metabolic, renal, neurological and psychiatric) and vitamin deficiency, Mucocutaneous bullous dermatoses,Orofacial pain, neuralgia and temporomandibular joint - glossodynia and glossopyrosis, burning mouth syndrome, subjective xerostomia and idiopathic dysgeusia, White and red oral mucosal lesions,Inflammatory hyperplasia, nonspecific granulomas and benign tumors, Precancerous conditions and neoplasms, Principles of therapy in oral medicine, Pharmacology related to Oral medicine.

Recommended literature:

1. Field A, Logman L, Tyldesley W.: Tyldesley's oral medicine, 5th edition, Oxford University Press, 2003.
2. Laskaris G.: Color Atlas of Oral Diseases, 3rd edition, Thieme Stuttgart – New York, 2003.
3. Laskaris G, Scully C.: Periodontal Manifestations of Local and Systemic Diseases, Springer, 2003.
4. Scully C, Porter S.: Orofacial disease-Update for dental clinical team, Churchill Livingstone, 2003.

Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.

Total number of classes of active teaching and learning:				Professional practice/ independent learning: 30
Lectures: 30	Practicals:30	Other modes of teaching:	Research paper:	

Teaching and learning methods:

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	3	Written Test	
Participation in practicals	27	Practical exam	20
Mid-term test (s)	8	Oral exam	40
Seminars	2		
Other			

Table 5.2 Subject specification

Study Programme: Integrated Studies of Dental Medicine	C25
Level of studies: Second	
Course: Preclinical Periodontology	
Course Leader (Name, middle letter, surname): Zoran M Aleksic	
Course status (compulsory/elective): Compulsory	
ECTS: 7	**Year of the study: IV / 8th semester**
Entry requirements (passed exams from the previous years):	**Course code: ST20PAR1**

Objectives of the course:
Training students to carry out diagnostic procedures in periodontology, gaining knowledge of the basic principles of professional and personal patient care in terms of oral and periodontal health. Training students to apply treatment concepts in prevention and initial periodontal therapy.

Outcomes of the course:
After completing the course, the students should be able to:
- Demonstrate knowledge of anatomical, histological and topographical characteristics of the periodontium;
- Understand the etiology and pathogenesis of periodontal disease and know the risk factors for the emergence and development of the disease;
- Govern diagnostic procedures and protocols for the periodontal documentation formation;
- Establish the final diagnosis of periodontal disease;
- Assess oral hygiene level and assess the periodontal condition by means of adequate periodontal parameters/indices;
- Demonstrate adequate knowledge of manual and machined instruments used in periodontal treatment.
- Know the basic principles of instrumentation and fixation techniques;
- Recognize indications for application of various medications during periodontal treatment

Contents of the course:
Anatomical and histological principles of the periodontal diseases. Classification of periodontal diseases and conditions. Epidemiology of periodontal diseases. Prognosis and treatment plan. Diagnostic tools for final diagnosis establishment. Radiographic tools used in periodontology. Etiopathogenetic mechanisms of periodontal disease. Occlusion and periodontal disease. Gingivitis and differential diagnosis towards periodontal disease. Initial periodontal therapy. Risk factors, modifying factors and aging. Medications in periodontal treatment.

Recommended literature:
Lindhe J, Lang NP and Karring T. Clinical periodontology and implant dentistry. 5th edition. Wiley-Blackwell, 2009. Pages: 3-215, 352-381, 403-413, 432-508.

Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals: 30	Other modes of teaching:	Research paper:	30

Teaching and learning methods:

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	3	Written Test	
Participation in practicals	27	Practical exam	30
Mid-term test (s)	10	Oral exam	30
Seminars			
Other			

Table 5.2 Subject specification

Study Programme: Integrated Studies of Dental Medicine	C26
Level of studies: Second	
Course: Preclinical Endodontics	
Course Leader (Name, middle letter, surname): Nevenka S Teodorović	
Course status (compulsory/elective): Compulsory	
ECTS: 6	**Year of the study: IV / 8th semester**
Entry requirements (passed exams from the previous years):	**Course code: ST20PREN**

Objectives of the course:
To teach and train students to acquire all necessary knowledge and skills to endodontically treat teeth affected by pulpal and periapical disease

Outcomes of the course:
After completing the course, the student should be able to:
-Demonstrate the knowledge of isolation of the clinical crown, handling and use of rubber dam
-Demonstrate the knowledge of basic principles and endodontic treatment methodology
-Demonstrate a profound knowledge of tooth morphology and root canal anatomy
-Demonstrate the knowledge of the objectives and guidelines for access cavity preparation and practical skills to prepare all types of access cavities on the models
-Possess theoretical knowledge and practical skills to conduct different methods of measuring canal length in laboratory conditions
-Possess theoretical knowledge of various types of endodontic instruments practical skills to use them in the root canal therapy of acrylic teeth of different morphological groups
- Knowledge about medications and irrigating solutions and chemo- mechanical root canal preparation of acrylic teeth
-Demonstrate the theoretical knowledge of different techniques regarding definitive root canal obturation and practical skills to perform mono-cone technique and lateral condensation technique for permanent root canal obturation of acrylic teeth
-Possess the knowledge and competencies to perform every basic step in endodontic procedure and understand the direct relation to treatment outcomes
-Demonstrate the theoretical and practical knowledge of endodontic therapy that can be used in clinical conditions

Contents of the course:
Key points and goals of endodontic therapy , teeth morphology and root canal anatomy. Different endodontic instruments and equipment of clinical endodontic practice. Manual techniques for root canal preparation, irrigation procedures and various irrigating solutions and medicaments. Materials and techniques for definitive root canal obturation. Practical courses and student independent preclinical practice using models and acrylic teeth: Direct training for preclinical endodontic procedure, instruments for access cavity preparation, instruments and manual techniques for root canal preparation (Step-back, Crown- down) on acrylic teeth. Medication and methodology of root canal irrigation. Different materials and techniques for permanent root canal obturation.

Recommended literature:
1. Bergenholtz G et al.Textbook of Endodontology, 2nd eds, Wiley- Blackwell, Chichester, UK,2010.
2. Tronstad L. Clinical endodontics- a textbook, 3rd eds, Thieme, NY, USA, 2009.

Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.

Total number of classes of active teaching and learning:				Professional practice/ independent learning: 30
Lectures: 15	Practicals: 30	Other modes of teaching:	Research paper:	

Teaching and learning methods:

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	3	Written Test	30
Participation in practicals	27	Practical exam	15
Mid-term test (s)	5	Oral exam	15
Seminars	5		
Other			

Elective Block 4
Materials for Direct Esthetic Restorations
Discolorations of Vital Teeth
Minimum Intervention Cariology
Dental Care for Children with Rare Diseases
Biochemistry of Body Fluids
Clinical Significance of the Topographical Anatomy of the Head and Neck
Clinical Significance of Cranial Nerves
Head and Neck Cancer Prevention
Antibiotic Prophylaxis in High-Risk Patients
Ambulatory Sedation in Dentistry
Periodontal Manifestations of Local and Systemic Diseases
Prophylaxis in Contemporary Periodontal Treatment
Oral Potentially Malignant Disorders and the Contemporary Concept of Diagnostics
Principles of Diagnostics in Oral Medicine
Principles of Treatment of Oral Diseases and Adverse Drug Reactions
Autoimmune Diseases of the Oral Mucosa
Oral Mucosal Diseases in Immunocompromised Patients
Gerodontology

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	4E1
Level of studies: Second	
Course: Materials for Direct Esthetic Restorations	
Course Leader (Name, middle letter, surname): Vesna J. Miletić	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: IV / 7th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_4_01**

Objectives of the course:
Acquiring knowledge of the composition, properties, classifications, indications and clinical application of materials for direct esthetic restorations (composites, glass-ionomer cements and hybrid materials)

Outcomes of the course:
Upon successful completion of the course, students should be able to:
- explain material composition and setting reaction,
- analyze material selection for specific indications,
- describe clinical procedures involving specific material types,
- critically appraise current criteria for restoration clinical assessment,
- evaluate method selection for restoration repair in specific clinical situations,
- identify and describe the importance of biological properties of these materials

Contents of the course:
Composites, glass-ionomer cements and hybrid materials: composition, classifications, properties, setting reactions, indications and clinical procedure, clinical assessment of restorations, laboratory testing of material properties, restoration longevity, restoration repair and biological aspects of esthetic materials.

Recommended literature:
1. Živković S, editor. Principles of restorative dentistry. 2nd ed. Belgrade: Data Status; 2019. (pages 248-270)
2. . Vesna Miletic (editor). Dental Composite Materials for Direct Restorations. Cham, Switzerland : Springer International Publishing AG; 2018. (pages. 11-23, 43-70, 235-288)
3. Sidhu SK, Nicholson JW. A Review of Glass-Ionomer Cements for Clinical Dentistry. Journal of Functional Biomaterials 2016;7(3):E16, doi: 10.3390/jfb7030016. (pages 1-15)

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 15	Research paper:	

Teaching and learning methods

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	-	Written defense of a project on a chosen topic	60
Participation in practicals	-		
Mid-term test(s)	20		
Seminars	20		
Other			

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	4E2
Level of studies: Second	
Course: Discolorations of Vital Teeth	
Course Leader (Name, middle letter, surname): Tatjana V. Savić-Stanković	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: IV/ 7th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_4_02**

Objectives of the course:
Gaining knowledge of the types, causes and mechanisms of vital tooth discoloration; diagnostic significance of tooth discoloration; the mechanisms of its formation, the materials and clinical methods of vital teeth bleaching; side effects of therapy; causes of tooth hypersensitivity after therapy; contraindications and post-treatment procedures.

Outcomes of the course:
After taking the lectures and passing the exam, the student should be able to:
- describe the basic factors and mechanisms of vital tooth discoloration
- describe the characteristics of existing whitening agents
- explain the types and characteristics of clinical teeth whitening methods
- describe all the procedures prior to vital teeth whitening process
- select an adequate therapeutic method in regard to diagnosis
-explain the therapeutic procedure of taking care of possible side effects of procedure

Content of the course:
Characteristics of optical properties of hard dental tissues; the definition, causes and classification of vital tooth discoloration; definition of the mechanism of tooth discoloration; types of agents and the mechanism of their whitening action; the process of preparing vital teeth whitening therapy; methods of whitening vital teeth; contraindications in bleaching therapy; side effects of therapy; definition and factors of tooth hypersensitivity; post-therapeutic procedures for the revitalization of hard dental tissues.

Recommended literature:
1. Goldstein, Ronald E., and David A. Garber. Complete dental bleaching. Quintessence Publishing (IL), 1995; str.1-159
2. Frank Setzer. Bleaching procedures. U: Hargreaves, Kenneth M., and Louis H. Berman. Cohen's pathways of the pulp expert consult. Elsevier Health Sciences, 2016. e96-e113

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 15	Research paper:	

Teaching and learning methods

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	4E3
Level of studies: Second	
Course: Minimum Intervention Cariology	
Course Leader (Name, middle letter, surname): Tamara O. Peric	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: IV /7th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_4_03**

Objectives of the course:
To acquire knowledge of non-invasive, micro-invasive, and minimally invasive techniques for diagnostic and treatment of dental caries.

Outcomes of the course:
After completing the course and passing the exam, the student should be able to/know how to:
- assess the caries risk;
- use caries prevention methods;
- apply methods for early caries detection;
- make the choice and is able to apply non-invasive and micro-invasive techniques for treatment of the initial caries lesion;
- know the principles of minimally invasive cavity preparation in both enamel and dentine;
- use alternative cavity preparation techniques;
- create an effective individual treatment plan.

Content of the course:
Minimum intervention cariology - definition, basic principles; Caries risk assessment; Caries prevention methods (control of dental plaque, diet modifications, chemoprophylaxis); Early caries detection- methods and techniques; Non-invasive caries treatment- external and internal remineralization; Micro-invasive caries treatment- fissure sealing; Micro-invasive caries treatment- resin infiltration; Minimally invasive cavity preparation in enamel; Minimally invasive cavity preparation in dentine; Modern techniques for cavity preparation (air abrasion, ultrasonic preparation, lasers, chemo-mechanical method, polymer / ceramic burs, etc.); Individual treatment plan.

Recommended literature:

1. Tassery H, Levallois B, Terrer E, Manton DJ, Otsuki M, Koubi S, Gugnani N, Panayotov I, Jacquot B, Cuisinier F, Rechmann P. Use of new minimum intervention dentistry technologies in caries management. Aust Dent J 2013; 58: 40-59.
2. Frencken JE, Peters MC, Manton DJ, Leal SC, Gordan VV, Eden E. Minimal intervention dentistry for managing dental caries - a review: report of a FDI task group. Int Dent J 2012; 62: 223–243.
3. Schwendicke F, Frencken JE, Bjørndal L, Maltz M, Manton DJ, Ricketts D, Van Landuyt K, Banderjee A, Campus G, Doméjean S, Fontana M, Leal S, Lo E, Machiulskiene V, Schulte A, Splieth C, Zandona AF, Innes NPT. Managing carious lesions: Consensus recommendations on carious tissue removal. Adv Dent Res. 2016; 28(2):58-67.

Total number of classes of active teaching and learning: 30				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	30		
Other	10		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	4E4
Level of studies: Second	
Course: Dental Care for Children with Rare Diseases	
Professor in charge Mirjana D Ivanovic	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: IV/ 7th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_4_04**

Objectives of the course:
Acquiring knowledge about the concept of rare diseases, the way of occurrence of rare diseases, the possibilities of diagnosis of rare diseases, the oral health status of children with rare diseases and the possibilities of dental treatment of children, depending on the rare disease present.

Outcomes of the course:
After completing the course and passing the exam, the student should be able to:
- Admit a child with a rare disease appropriately to the dental office
- Make contact with children with rare diseases and parents of diseased children
- Recognize the specificities of oral diseases in children with rare diseases
- Diagnose oral diseases in children with rare diseases
- Know the protocols for dental care for children with various rare diseases
- Develop a plan for preventive, prophylactic and therapeutic measures, depending on the type of rare disease

Contents of the course:
Definition, etiology, epidemiology of rare diseases in children; Diagnosis of rare diseases; Oral manifestations of various rare diseases in children; Methods of dental care for children with rare diseases, outpatient work, sedation and general anesthesia; Knowledge and application of protocols for dental care of children with rare diseases, depending on the type of disease, preventive, prophylactic and therapeutic measures.

Recommended literature:

1.Dawkins, H. J. S. et al. Progress in rare diseases research 2010-2016: an IRDiRC perspective. Clin. Transl. Sci. 11, 11–20 (2018).
2. Bergendal B. Orodental manifestations in ectodermal dysplasia-a review. Am J Med Genet A. 2014 Oct;164A(10):2465-71.
3. Klineberg I, Cameron A, Whittle T, Hobkirk J, Bergendal B, Maniere MC, King N, Palmer R, Hobson R, Stanford C, Kurtz K, Sharma A, Guckes A. Rehabilitation of children with ectodermal dysplasia. Part 1: an international Delphi study. Int J Oral Maxillofac Implants. 2013 Jul-Aug;28(4):1090-100.
4.Schieppati, A., Henter, J.-I., Daina, E. & Aperia, A. Why rare diseases are an important medical and social issue. Lancet 371, 2039–2041 (2008).

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 15	Research paper:	

Teaching and learning methods: Teaching methods involve working in small groups and an interactive combination of brief theoretical remarks by the teacher, self-report to a group on a given topic based on previously analyzed literature, discussion on a given topic

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Oral defense of a project on a chosen topic	60
Participation in practicals			
Mid-term test(s)			
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine				4E5
Level of studies: Second				
Course: Biochemistry of Body Fluids				
Course Leader (Name, middle letter, surname): Tatjana M Todorović				
Course status (compulsory/elective): Elective				
ECTS: 3		**Year of the study: IV / 7th semester**		
Entry requirements (passed exams from the previous years):		**Course code: I_4_05**		
Objectives of the course: Acquiring knowledge of the mechanism of formation and biochemical composition of cerebrospinal, pleural, pericardial, peritoneal, amniotic, seminal, synovial fluid and sweat, as well as of the clinical and diagnostic significance of determining biochemical parameters.				
Outcomes of the course: After completing the course and passing the exam, the students should be able to: analyze the values of concentrations of biochemical parameters in body fluids and evaluate their clinical and diagnostic significance.				
Contents of the course: Formation and biochemical content of body fluids (cerebrospinal fluid, pleural fluid, pericardial fluid, peritoneal fluid, sweat, amniotic fluid , seminal fluid, synovial fluid). Analysis of biochemical parameters and their clinical and diagnostic significance (proteins, glucose, immunoglobulins, lactate, myelin basic protein, amyloid beta 42 peptide, Tau protein, total proteins, cholesterol, pH, LDH, amylase, triacylglycerols, chlorides, bilirubin, fructose, alpha-glucosidase, acid phosphatase)				
Recommended literature: Balfe, A. et al. The biochemistry of body fluids. Association of Clinical Biochemists in Ireland, 2009. p.25				
Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 15	Research paper:	
Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.				
Assessment (maximum number of points: 100)				
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**		
Participation in lectures		Written defense of a project on a chosen topic	60	
Participation in practicals		Practical exam		
Mid-term test(s)		Oral exam		
Seminars	40			
Other				

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	4E6
Level of studies: Second	
Course: Clinical Significance of the Topographical Anatomy of the Head and Neck	
Course Leader (Name, middle letter, surname): Dinka S. Mucić	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: IV/ 7th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_4_06**

Objectives of the course:
The learning objective of this particular course is to provide students with the practical and theoretical knowledge of systematic and topographical anatomy of the head and neck.

Outcomes of the course:
After attending this course and passing the exam, the students should be able to:
-Recognize and describe anatomical spaces and regions of the head and neck
-Recognize and describe the content of anatomical spaces and regions of the head and neck
-Define communication between anatomical spaces and regions of the head and neck
-Recognize and determine the route of infection and metastatic changes

Contents of the course:
Regions of the head and neck:
Regiones capitis: Regio frontalis. Regio temporalis. Regio parietalis. Regio occipitalis.
Regiones faciei: Regio nasalis. Regio oralis. Regio mentalis. Regio orbitalis. Regio infraorbitalis.Regio zygomatica. Regio buccalis.Regio parotideomasseterica. Regio infratemporalis.
Regiones cervicales: Regio colli anterior. Regio sternocleidomastoidea. Regio colli lateralis. Regio colli posterior.
Spaces of the head and neck: Parotid space. Submandibular space. Sublingual space. Canine space. Buccal space. Infratemporal space. Pterygomandibular space. Masseteric space. Parapharyngeal space. Retropharyngeal space. Suprasternal space. Visceral space. Retrovisceral space. Vascular space.

Recommended literature:
- Moore KL. Clinically Oriented Anatomy. Williams & Wilkins,Baltimore-Tokyo, 1992. Pp.637-852.
- Liebgott B. Anatomical Basis of Dentistry. Decker Inc, Toronto-Philadelphia,1986. Pp. 148-168, 284-347.
- Snell RS. Clinical Anatomy. Little, Brown and Company, Boston, 1981. Pp. 597-676.

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 15	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)

Pre-exam compulsory activities	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)	20	Oral exam	
Seminars			
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	4E7
Level of studies: Second	
Course: Clinical Significance of the Cranial Nerves	
Course Leader (Name, middle letter, surname): Goran B. Vujašković	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: IV/ 7th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_4_07**

Objectives of the course:
The learning objective of this particular course is to provide a practical and theoretical knowledge of cranial nerves from the viewpoint of the clinical significance for dentistry.

Outcomes of the course:
After attending this course and passing the exam, the students should be able to:
-Describe pathways of cranial nerves
-Define the type of fiber of each of the cranial nerves
-Describe autonomic ganglions attached to the final branches of the trigeminal nerve
-Determine innervation zones of the head and neck especially the orofacial region
-Define projection pathways of the central nervous system, downstream (the corticobulbar tract) and upstream (the medial lemniscus pathway and the gustatory pathway), for the purpose of getting a comprehensive insight into cranial nerves

Contents of the course:
Nn. olfactorii. N.opticus. N. oculomotorius. N.trochlearis. N. trigeminus. N. abducens. N. facialis.N. vestibulocochlearis. N.glossopharyngeus. N. vagus N.accessorius. N.hypoglossus.
Cranial nerve nuclei. The corticobulbar tract. The medial lemniscus pathway. The gustatory pathway.

Recommended literature:
- Moore KL. Clinically Oriented Anatomy. Williams & Wilkins,Baltimore-Tokyo, 1992. Pp. 853-875.
- Snell RS. Clinical Anatomy. Little, Brown and Company, Boston, 1981. Pp. 597-676.

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 15	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)	20	Oral exam	
Seminars			
Other	20		

Table 5.2 Subject specification

<table>
<tr><td colspan="4">Study program: Integrated Studies of Dental Medicine</td><td>4E8</td></tr>
<tr><td colspan="5">Level of studies: Second</td></tr>
<tr><td colspan="5">Course: Head and Neck Cancer Prevention</td></tr>
<tr><td colspan="5">Course Leader (Name, middle letter, surname): Zoran M. Jezdic</td></tr>
<tr><td colspan="5">Course status (compulsory/elective):</td></tr>
<tr><td colspan="3">ECTS: 3</td><td colspan="2">Year of the study: IV/ 7th semester</td></tr>
<tr><td colspan="3">Entry requirements (passed exams from the previous years):</td><td colspan="2">Course code: I_4_08</td></tr>
<tr><td colspan="5">Objectives of the course:
Gaining knowledge of the principles and procedures in the prevention of head and neck cancer.</td></tr>
<tr><td colspan="5">Outcomes of the course:
After completing the lectures and passing the exam, the student should be able to:
- recognize head and neck precancerous lesions
- use necessary preventive measures and procedures to exclude risk factors for head and neck cancer
- know patient care protocol in case of potentially suspected precancerous lesions</td></tr>
<tr><td colspan="5">Contents of the course:
Head and neck precancerous lesions; Factors in favor of head and neck cancer; Preventive measures and procedures; Patient care protocol of patients with risk factors that could cause head and neck cancer.</td></tr>
<tr><td colspan="5">Recommended literature:
1.Hellen Gelband, Prabhat Jha, Rengaswamy Sankaranarayanan,Susan Horton.Cancer: Disease Control Priorities, Third Edition (Volume 3).ISBN: 978-1-4648-0350-5. The International Bank for Reconstruction and Development / The World Bank; 2015. 85-96
2. US Department of Health and Human Services The Surgeon General's Call to Action to Prevent Skin Cancer. Washington (DC): Bookshelf ID: NBK247164.Office of the Surgeon General (US);. 2014.10 - 26</td></tr>
<tr><td colspan="4">Total number of classes of active teaching and learning: 30</td><td rowspan="2">Professional practice/ independent learning:</td></tr>
<tr><td>Lectures:
30</td><td>Practicals:</td><td>Other modes of teaching : 15</td><td>Research paper:</td></tr>
<tr><td colspan="5">Teaching and learning methods</td></tr>
<tr><td colspan="5">Assessment (maximum number of points: 100)</td></tr>
<tr><td>Pre-exam requirements</td><td>Total 40 points</td><td colspan="3">Final exam 60 points</td></tr>
<tr><td>Participation in lectures</td><td></td><td>Written defense of a project on a chosen topic</td><td colspan="2">60 points</td></tr>
<tr><td>Participation in practicals</td><td></td><td>Practical exam</td><td colspan="2"></td></tr>
<tr><td>Mid-term test(s)</td><td></td><td>Oral exam</td><td colspan="2"></td></tr>
<tr><td>Seminars</td><td>20 points</td><td></td><td colspan="2"></td></tr>
<tr><td>Other</td><td>20 points</td><td></td><td colspan="2"></td></tr>
</table>

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	4E9
Level of studies: Second	
Course: Antibiotic Prophylaxis in High-Risk Patients	
Course Leader (Name, middle letter, surname): Petrovic B. Milan	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: IV / 7th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_4_09**

Objectives of the course:
Acquiring knowledge required for recognizing high-risk patients during dental interventions and complications that may occur after a dental session. Gaining knowledge required for selecting and applying antibiotic treatment in high-risk patients, performing follow-ups, and detecting possible complications.

Outcomes of the course:
Upon completing the course and passing the exam, students should be able to:
- Recognize a high-risk patient during a dental session
- Anticipate possible complications that may occur
- Explain to a patient what complications may occur after a dental session and what is to be done to prevent them
- Choose the right therapy for high-risk patients, either independently or in cooperation with another medical specialist
- Follow up results of treatment in high-risk patients
- Ascertain possible complications that may occur despite the applied treatment

Contents of the course:
Definition of high-risk patients. Diseases and their symptomatology which classify patients as high-risk in dental sessions. The way of identifying high-risk patients. Dental interventions which can initiate complications in certain diseases. Antibiotics applied with high-risk patients. Supervising patients after the application of antibiotic prophylaxis. Complications that occur after applying inadequate antibiotic prophylaxis. Treatment of complications in high-risk patients.

Recommended literature:
E.Nuzzolese.The patient at risk in dentistry: behavioral and medico legal recommendations. Eur J Forensic Sci, 2016;3(4)

Total number of classes of active teaching and learning: 30				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 15	Research paper:	

Teaching and learning methods:
Small groups, seminars, integrative discussions, case study

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2 Subject specification

<table>
<tr><td colspan="3">Study program: Integrated Studies of Dental Medicine</td><td colspan="3">4E10</td></tr>
<tr><td colspan="6">Level of studies: Second</td></tr>
<tr><td colspan="6">Course: Ambulatory Sedation in Dentistry</td></tr>
<tr><td colspan="6">Course Leader (Name, middle letter, surname): Miroslav M. Andrić</td></tr>
<tr><td colspan="6">Course status (compulsory/elective): Elective</td></tr>
<tr><td colspan="3">ECTS: 3</td><td colspan="3">Year of the study: IV / 7th semester</td></tr>
<tr><td colspan="3">Entry requirements (passed exams from the previous years):</td><td colspan="3">Course code: I_4_10</td></tr>
<tr><td colspan="6">Objectives of the course:
To introduce methods of sedation in dental practice</td></tr>
<tr><td colspan="6">Outcomes of the course:
Following course completion students should be able to:
- Establish indications and contraindications for sedation in dental practice
- Use instruments and drugs for sedation techniques
- Properly evaluate depth of sedation
- Recognize and treat complication during sedation</td></tr>
<tr><td colspan="6">Contents of the course:
Indications and contraindications for sedation, drugs and instruments for sedation, sedation techniques, complications of sedation</td></tr>
<tr><td colspan="6">Recommended literature:
N. M. Girdler ,C. Michael Hill, Katherine Wilson: Clinical Sedation in Dentistry. London: Wiley-Blackwell; 2009, 182 pages</td></tr>
<tr><td colspan="4">Total number of classes of active teaching and learning:</td><td colspan="2" rowspan="2">Professional practice/ independent learning:</td></tr>
<tr><td>Lectures:
30</td><td>Practicals:</td><td>Other modes of teaching : 15</td><td>Research paper:</td></tr>
<tr><td colspan="6">Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.</td></tr>
<tr><td colspan="6">Assessment (maximum number of points: 100)</td></tr>
<tr><td>Pre-exam requirements</td><td>Total 40 points</td><td colspan="4">Final exam 60 points</td></tr>
<tr><td>Participation in lectures</td><td></td><td colspan="2">Written defense of a project on a chosen topic</td><td colspan="2">60</td></tr>
<tr><td>Participation in practicals</td><td></td><td colspan="2">Practical exam</td><td colspan="2"></td></tr>
<tr><td>Mid-term test(s)</td><td></td><td colspan="2">Oral exam</td><td colspan="2"></td></tr>
<tr><td>Seminars</td><td>20</td><td colspan="2"></td><td colspan="2"></td></tr>
<tr><td>Other</td><td>20</td><td colspan="2"></td><td colspan="2"></td></tr>
</table>

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	4E11
Level of studies: Second	
Course: Periodontal Manifestations of Local and Systemic Diseases	
Course Leader (Name, middle letter, surname): Natasa S. Nikolic Jakoba	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: IV / 7th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_4_11**

Objectives of the course:
Expanding the knowledge of periodontal manifestations of local and systemic conditions and diseases, their clinical features and therapy.

Outcomes of the course:
After completing the course and passing the exam, a student should be able to:
- diagnose local and systemic diseases with periodontal manifestations
- treat periodontal manifestations of local and systemic diseases
- recognize the need to refer the patient to a specialist examination

Contents of the course:
Manifestations of local diseases and lesions occurring in the periodontium (inflammatory diseases, developmental disorders, drug-influenced gingival lesions and diseases, cysts, tumors, tumor-like lesions, potentially malignant, allergic and foreign body reactions, physical lesions, chemical lesions, thermal lesions, lesions due to radiation, pigmented disorders): clinical features, diagnosis, differential diagnosis, and treatment plan. Manifestations of systemic diseases and lesions occurring in the periodontium (genetic disorders, infections, haematological disorders and malignancies, skin diseases, endocrine disorders, immunodeficiencies, autoimmune diseases): clinical features, diagnosis, differential diagnosis, and treatment plan.

Recommended literature:
1. Laskaris G, Scully C. Periodontal Manifestations of Local and Systemic Diseases. Colour Atlas and Text. 1st. ed. Springer-Verlag, Berlin, 2003. (pg. 21-336)
2. Lindhe J. Lang NP, Karing T. Clinical periodontology and implant dentistry,2 Volume Set 6th Edition. New York: Wiley; 2017. (pg. 269-318)

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 15	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	20	Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other			

Table 5.2 Subject specification

Study Programme: Integrated Studies of Dental Medicine				4E12
Level of studies: Second				
Course: Prophylaxis in Contemporary Periodontal Treatment				
Course Leader (Name, middle letter, surname): Iva Z. Milinkovic				
Course status (compulsory/elective): Elective				
ECTS: 3			**Year of the study: IV/ 7th semester**	
Entry requirements (passed exams from the previous years):			**Course code: I_4_12**	
Objectives of the course: Introducing students to the importance of prophylactic measures in prevention and treatment of periodontal disease, as well as during periodontal maintenance. Gaining knowledge of oral hygiene maintenance and professional cleaning. Training in professional cleaning and the choice of adequate hand or machine-driven instruments. Individualized patient approach.				
Outcomes of the course: Following the course completion, the student should be able to: - describe etiopathogenetic mechanisms of periodontal disease - describe biofilm activities and mechanisms - create individualized modes for oral hygiene maintenance. - know and performs methods for professional plaque control - know and performs methods for contemporary professional plaque control				
Contents of the course: Definition, composition and activity mechanism of biofilm. Possibilities of home mechanical plaque control. Possibilities of professional mechanical plaque control. Treatment options for inflammation control, plaque removal and periodontal maintenance in periodontal patients.				
Recommended literature: Lindhe J, Lang NP and Karring T. Clinical periodontology and implant dentistry. 5th edition. Wiley-Blackwell, 2009. Pages: 695-734, 1297-1320. Ng E, Byun R, Spahr A, Divnic-Resnik T. The efficacy of air polishing devices in supportive periodontal therapy: A systematic review and meta-analysis. Quintessence Int. 2018;49(6):453-467. Mussano F, Rovasio S, Schierano G, Baldi I, Carossa S The effect of glycine-powder airflow and hand instrumentation on peri-implant soft tissues: a split-mouth pilot study. Int J Prosthodont. 2013 Jan-Feb;26(1):42-4.				
Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching :15	Research paper:	
Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.				
Assessment (maximum number of points: 100)				
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**		
Participation in lectures		Written defense of a project on a chosen topic	60	
Participation in practicals				
Mid-term test(s)				
Seminars	20			
Other	20			

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	4E13
Level of studies: Second	
Course: Oral Potentially Malignant Disorders and the Contemporary Concept of Diagnostics	
Course Leader (Name, middle letter, surname): Ana Lj. Pucar	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: IV , 7th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_4_13**

Objectives of the course:
Acquiring knowledge of biological mechanisms of oral cancer formation and risk factors for premalignant disorders and their development in oral cancer, diagnostic procedures with an emphasis on the principles of early diagnosis of lesions in daily practice, the possibility of lesion treatment and control of progression to oral cancer.

Outcomes of the course:
After completing the course and passing the exam, the student should be able to:
- Describe the mechanisms of development of potentially malignant disorders and the possibility of progression to oral cancer
- Define risk factors for potentially malignant disorders and oral cancer
- Describe clinical symptoms and signs of potentially malignant disorders
- Describe and provide indications for early diagnostic procedures (screening) that can be applied in daily practice
- Interpret the results of early diagnostic procedures
- Develop an effective lesion treatment plan and correctly determine when the patient should be referred for further treatment

Contents of the course:
Definition, type and classification of oral potentially malignant disorders; Pathological and pathophysiological basis of the emergence of potentially malignant disorders; Risk factors for potentially malignant disorders and oral cancer; Methods of modern diagnostics and screening (vital tissue staining, lesion visualization with chemiluminescent techniques, exfoliative cytology, detection of CD44 biomarkers in saliva); knowledge of therapeutic options in the rehabilitation and control of potentially malignant disorders; determining the need for specialist treatment of the lesion.

Recommended literature:

1. Brightman JV. Red and White Lesions of the Oral Mucosa Chapter 3. У: Burket's Oral Medicine 12th Edition, Autor: Michael Glick, PMPH-USA, 2015. Стр. 51-111.
2. Oral premalignancy. У: Cawson's Essentials of Oral Pathology and Oral Medicine 8th Edition, Edition by Edward W. Odell and Roderick A. Cawson (Author), Churchill Livingstone Elsevier. Стр. 261-277.
3. Erythroplakia, leukoplakia, keratosis and other potentially malignant condition. У: Oral and Maxillofacial Medicine: The basis of Diagnosis and Treatment. 2nd ed. Churchill Livingsone Elsevier. Стр. 211-225.

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 15	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2. Subject specification

Study program: Integrated Studies of Dental Medicine			4E14
Level of studies: second			
Course: Principles of Diagnostics in Oral Medicine			
Course Leader (Name, middle letter, surname): Dragan M.Stanimirović			
Professor: Dragan M. Stanimirović			
Course status (compulsory/elective): elective			
ECTS: 3		**Year of study: IV / 7th semester**	
Entry requirements (passed exams from the previous years):		**Course code: I_4_14**	
Objectives of the course: Acquiring knowledge required for obtaining anamnesis, adequately performing clinical examination, and the application of clinical, clinical-laboratory and laboratory tests, supplementary radiological diagnostics, conducting individual tests related to local and systemic factors relevant for establishing a particular oral medical diagnosis, writing a diagnosis, and consultative reviews.			
Outcomes of the course: After completing the course and passing the exam, the students should be able to: - Perform adequate examinations of patients and examine their complaints - Perform a clinical examination - Refer the patient for additional radiological diagnostics - Refer the patient for additional testing of the local and general health of the patient - Establish a diagnosis - Instruct the patient for a consultation with a medical doctor of various specialties relevant to the disease			
Contents of the course: Anamnesis - major problems and present illness, personal history, family history, social history. Clinical examination - inspection, palpation. Diagnostic tests - clinical tests, clinical laboratory tests, laboratory tests. Radiological diagnostics. Diagnosis. Consultative review.			
Recommended literature: 1. Glick M , Greenberg M. Burket's Oral Medicine : Diagnosis and Treatment - 10th edition, United States B.C. Decker, Inc. 2002. (5 – 31) 2. Scully C. Oral and Maxillofacial Medicine : The Basis of Diagnosis and Treatment, Elsevier, 2004. (3 – 60) 3. W.R.Tyldesley, Oral Medicine, 3rd edition, Oxford University Press, New York, 1989. (23-32) 4. Giunta J. Oral Pathology, 3rd edition, United States B.C. Decker, Inc. 1989. (1-12) 5. Scully C. , Porter S. Orofacial Disease, Elsevier Science Limited, 2003. (1-10) 6. Cawson RA, Odell EW., Essentials of Oral Pathology and Oral Medicine, 6th edition, New York, Churchill Livingston, 1998. (1-14) 7. Silverman S, Eversole RL, Truelove E, Essentials of Oral Medicine, PMPH USA, Ltd; 1 edition (October 1, 2001, (1-26) 8. Bengel W, Veltman G, LT Hannelore, Taschini P, Differential Diagnosis of Diseases of the Oral Mucosa, Quintessence Publishing Co Inc.,U.S. 1989. (21-40)			
Total number of classes of active teaching and learning:			Professional practice/independent work:
Lectures:30	Practicals:	Other modes of teaching :15	
Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.			

Assessment (maximum number of points: 100)			
Pre-exam requirements	**40 points**	**Final exam**	**60 points**
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals			
Mid-term test(s)			
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine				4E15
Level of studies: Second				
Course: Principles of Treatment of Oral Diseases and Adverse Drug Reactions				
Course Leader (Name, middle letter, surname): Ana Lj. Pucar				
Course status (compulsory/elective): Elective				
ECTS: 3			**Year of the study: IV / 7th semester**	
Entry requirements (passed exams from the previous years):			**Course code: I_4_15**	
Objectives of the course: Acquiring knowledge of the basic principles of treating oral diseases, therapeutic procedures, types of medicines (drugs) used in treatment protocols, their pharmacological properties and potential adverse reactions.				
Outcomes of the course: After completing the course and passing the exam, the student should be able to: - Describe the basic principles of oral treatment of oral diseases - Acquire knowledge about medicines used in treatment protocols and their pharmacological properties, including the potential adverse effects - Describe the therapeutic procedures and protocols for the treatment of mucosal diseases, as well as the methods for administration of drugs in oral medicine - Acquire knowledge of the possibilities of prevention and remediation of adverse effects of medicines in therapy of oral cavity diseases				
Contents of the course: Principles of treatment in oral medicine; pharmacodynamics and pharmacokinetics of medicines used in the treatment of oral mucosal diseases; types of therapeutic procedures and procedures, familiarization with basic protocols for the treatment of oral mucosal diseases; adverse reaction of medicines used in the treatment of oral diseases and their prevention and remediation; treatment protocols for individual diseases or groups of diseases in oral medicine.				
Recommended literature: 1. Fundamental Principles of Patient Management, Section 1. Treatment; Agents used in the treatment of patients with oral disease In: Oral and Maxillofacial Medicine: The basis of Diagnosis and Treatment. Author: C. Scully. 2nd ed. Churchill Livingsone Elsevier. Pg. 39-69 2. Therapeutic Management of Common Oral Lesion. In: Dental management of the Medically Compromised Patients.7th edition. Authors: Little JW; Falace DA; Miller CS; Rhodus NL. Mosby Elsevier 2008. Pg. 574-595.				
Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 15	Research paper:	
Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.				
Assessment (maximum number of points: 100)				
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**		
Participation in lectures		Written defense of a project on a chosen topic	60	
Participation in practicals		Practical exam		
Mid-term test(s)		Oral exam		
Seminars	20			
Other	20			

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	4E16
Level of studies: second	
Course: Autoimmune Diseases of the Oral Mucosa	
Course Leader (Name, middle letter, surname): Miloš D.Hadži-Mihailović	
Course status (compulsory/elective): elective	
ECTS: 3	**Year of the study: IV / 7th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_4_16**
Objectives of the course: Acquiring knowledge of autoimmune pathogenesis, genetic predisposition and predisposing factors important for the initiation and progression of autoimmune diseases. Introducing students to the diagnostic procedures and principles of treating patients with autoimmune diseases.	
Outcomes of the course: After completing the course and passing the exam, the student should be able to: • Define the term *autoimmunity* • Describe the underlying pathogenetic mechanisms of autoimmune diseases • Describe the most common autoimmune diseases with oral manifestations • Recognize diagnostic procedures used to detect autoimmune diseases • Describe the procedures used in the treatment of autoimmune diseases.	
Contents of the course: Definition of autoimmunity; Genetic predisposition and predisposing factors in the onset of autoimmune diseases; Clinical features of autoimmune diseases with oral manifestations; Diagnostic procedures for the diagnosis of autoimmune diseases; Therapy of various autoimmune diseases with oral manifestations.	
Recommended literature: 1. Glick M. Burket's Oral medicine, 12th edition. People's Medical Publishing House – USA. Shelton, Connecticut , 2015.(494 – 509, 510 – 530, 563 – 575) 2. Little JW, Falace DA, Miller CS, Rhodus NL. Dental management of medically compromised patient, 8th edition. Elsevier, Mosby, 2012. (115 – 129, 180 – 192, 212 – 235, 280 - 301, 339 – 359, 373 – 395, 433 -461)	

Total number of classes of active teaching and learning: 30				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 15	Research paper:	
Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.				

Assessment (maximum number of points: 100)			
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	4E17
Level of studies: Second	
Course: Oral Mucosal Diseases in Immunocompromised Patients	
Course Leader (Name, middle letter, surname): Saša S. Čakić	
Course status (compulsory/elective): elective	
ECTS: 3	**Year of the study: IV / 7th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_4_17**
Objectives of the course: Expanding the knowledge of the causes and the clinical picture of primary and secondary immunodeficiencies, oral manifestations of individual immunodeficiencies and principles of access to dental procedures in patients with certain immunodeficiencies.	
Outcomes of the course: After completing the course and passing the exam, the student should be able to: - Recognize the most basic signs and symptoms of certain immunodeficiencies - Fully analyze the medical records related to the underlying disease - Recognize the oral manifestations of certain immunodeficiencies - Relate oral changes to individual immunodeficiencies - Provide adequate written referrals to other specialty physicians regarding the specific immunodeficiency - Make appropriate modification of the plan for the implementation of the necessary dental procedures for individual immunodeficiencies	
Contents of the course: Definition and classification of immunodeficiencies. Basic elements of the clinical picture of certain immunodeficiencies. Principles of treatment of individual immunodeficiencies, their side effects and interactions with medicines used in dental practice. Oral manifestations of certain immunodeficiencies. Differential diagnosis of oral manifestations of immunodeficiency. Development of a modified dental treatment plan for individual immunodeficiencies.	
Recommended literature: 1. Glick M. Burket's Oral medicine, 12th edition. People's Medical Publishing House – USA. Shelton, Connecticut , 2015.(494 – 509, 510 – 530, 563 – 575) 2. Little JW, Falace DA, Miller CS, Rhodus NL. Dental management of medically compromised patient, 8th edition. Elsevier, Mosby, 2012. (115 – 129, 180 – 192, 212 – 235, 280 - 301, 339 – 359, 373 – 395, 433 -461)	

Total number of classes of active teaching and learning: 30				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 15	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	4E18
Level of studies: Second	
Course: Gerodontology	
Course Leader (Name, middle letter, surname): Ljiljana Đ. Tihaček Sojić	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: IV / 7th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_4_18**

Objectives of the course:
Getting familiar with the aging process and timely dental care in elderly patients through clinical and preventive methods in order to provide maximum care of the orofacial system with adequate prosthodontic rehabilitation of elderly and ill patients.

Outcomes of the course:
After successfully finishing the course the student should be able to:
-recognize differential diagnosis of the pathological changes and emergencies in the oral cavity,
-understand adequate dental treatment, depending on the mental and physical condition of elderly patients,
-suggest the appropriate prosthetic treatment depending on the age, cooperative level and general health status of the patient.

Contents of the course:
During lectures and practicals the students will be introduced to specific procedures in dental treatment of elderly patients. Also, all aspects of ageing are analysed, with manifestations of aging in stomatognathic system. Special attention will be given to oral health quality of life and indices used to measure it. Also, different treatment modalities will be analysed through discussion.

Recommended literature:
Poul Holm-Pedersen, Harald Löe: Textbook of Geriatric Dentistry, Blackwell Oxford, 2011 pages 7-17, 61-103, 165-181

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 15	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study Programme: Integrated Studies of Dental Medicine	C27
Level of studies: Second	
Course: Pediatric Dentistry	
Course Leader (Name, middle letter, surname): Zoran R. Vulicevic	
Course status (compulsory/elective): Compulsory	
ECTS: 11	**Year of the study: V / 9th and 10th semesters**
Entry requirements (passed exams from the previous years):	**Course code: ST20DEST**

Objectives of the course:
To inform the students about the specificities of dental work in pediatric and adolescent patients, as well as the peculiarities of treatment during primary, mixed and young permanent dentition.

Outcomes of the course:
After successfully completing the course, the student should:
- Be familiar with the basic goals of pediatric dentistry, the importance of preserving the health of the mouth and teeth in children, as well as the specifics of working with children;
- Be familiar with the clinical techniques and psychological types of children;
- Be familiar with the characteristics of primary and permanent dentition, as well as the characteristics of caries of different dentitions;
- Comprehend the specifics of cavity preparations on primary and permanent teeth;
- Be familiar with the principles of minimally invasive dental treatments;
- Be familiar with the techniques of local anaesthesia in children;
- Be familiar with the dental materials used in pediatric dentistry;
- Demonstrate knowledge of the specifics of endodontic therapy of primary and young permanent teeth;
- Be familiar with the basics of oral-surgical interventions in children;
- Applies basic principles in the treatment of dental injuries;
- Know the basic principles of treatment of pulpitis of primary and young permanent teeth;
- Know the principles of treatment of dentogenic infections in children;
- Diagnose periodontal diseases in children;
- Diagnose bacterial and other diseases in the mouth of children;
- Know the principles of emergency management in pediatric dentistry;
- Know the principles of prosthetic care in pediatric dentistry;
- Know the principles of dental care for children with invalidity.

Contents of the course:
Diagnostic methods, dental examination and treatment planning in pediatric dentistry; Behavioral management and minimal sedation in pediatric dentistry; Pain control in pediatric dentistry; Cavity preparation on primary teeth;
Orofacial system growth and development; Irregularities in the development of the orofacial system and treatment options in pediatric dentistry; Minimally invasive therapy; Treatment of early childhood caries; Soft tissue disease and bacterial infection of the oral cavity in children; Oral manifestations of viral diseases in children; Diagnosis of primary and permanent teeth pulp condition; Treatment of young permanent and permanent teeth; Dental injuries in children: classification, treatment and complications; Oral manifestations of systemic diseases in children; Oral surgery, tumors and cysts in children; Molar incisor hypomineralization (MIH); Periodontal diseases in pediatric dentistry; Dental care for children with medical risk and rare diseases; Dentogenic infection therapy and antibiotics in pediatric dentistry; Emergency conditions in pediatric dentistry; Prosthetic care for children and adolescents; Dental treatment of children with invalidity.

Recommended literature:
- Welbury R, Duggal MS, Hosey MS (editors). Paediatric dentistry. Fourth edition. Oxford University Press 2012. (417 pages)
- Soxman JA (editor). Handbook of clinical techniques in pediatric dentistry. Wiley Blackwell 2015. (207 pages)

Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.

Total number of classes of active teaching and learning:				Professional practice/ independent learning: 60
Lectures:60	Practicals: 90	Other modes of teaching:	Research paper:	

Teaching and learning methods:

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	3	Written Test	
Participation in practicals	27	Practical exam	20
Mid-term test (s)	10	Oral exam	40

Table 5.2 Subject specification

Study Programme: Integrated Studies of Dental Medicine	C28
Level of studies: Second	
Course: Oral Surgery	
Course Leader (Name, middle letter, surname): Bojan D. Janjić	
Course status (compulsory/elective): Compulsory	
ECTS: 10	**Year of the study: V / 9th and 10th semesters**
Entry requirements (passed exams from the previous years):	**Course code: ST20ORAL**

Objectives of the course:
Acquiring the knowledge and skills necessary for self-diagnosis of oral surgical diseases, training students to perform simple and complicated tooth extractions independently, diagnose and treat dentogenic infections.

Outcomes of the course:
After completing the course and passing the oral surgery exam, the student should be able to:
- independently perform the necessary diagnostic procedures in order to make a diagnosis of oral surgical diseases
- independently perform simple extractions of the erupted teeth, residual roots, complicated tooth extractions and eliminate post-extraction complications
- diagnose patients at risk and to prepare them adequately for tooth extraction
- treat acute and chronic dentogenic infections and administer appropriate medicines
- prescribe medicines for preoperative, operative and postoperative treatment of oral surgery patients and to establish local hemostasis during and after surgical interventions
- set an indication for the surgical treatment of periapical lesions
- be familiar with the basic principles of dental trauma treatment
- diagnose oroantral communications and carry out conservative care of them

Contents of the course:
During the Oral Surgery course, the student should learn how to take anamnesis, perform a clinical examination and diagnose oral-surgical diseases, independently perform simple and complicated tooth extractions, diagnose and treat intra and post-extraction complications, diagnose and treat dentogenic infections, medicines for the therapy of oral surgery patients, recognize patients at risk and prepare them for oral surgery, diagnose pathological lesions on the teeth and the jaws and lining and indications for their therapy. Also, the student should become acquainted with the basic principles of oral surgery, make a plan of therapy, and assist during minor oral surgeries. Each student should become familiar with the basic principles of the treatment of orofacial pain, diagnose tooth traumas and oroantral communications and conduct their appropriate therapy.

Recommended literature:
1. TodorovicLj, Petrovic V, Kafedziska V, Jurisic M .: "Oral Surgery" - 2002 (301 pages)
2. Markovic A, Colic S, Stojcev-StajcicLj, Drazic R, Gacic B .: "Practice of Oral Surgery" - 2011 (193 pages)
3. James R Hupp, Edward Ellis III, Myron R Tucker: "Contemporary Oral and Maxillofacial Surgery", Mosby, Inc. ((209 pages (73-127, 153-213,291-363,383-397))

Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.

Total number of classes of active teaching and learning:				
Lectures: 60	Practicals: 90	Other modes of teaching:	Research paper:	Professional practice/ independent learning: 60

Teaching and learning methods:

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	3	Written Test	
Participation in practicals	27	Practical exam	20
Mid-term test (s)	10	Oral exam	40
Seminars			
Other			

Table 5.2 Subject specification

Study Programme: Integrated Studies of Dental Medicine	C29
Level of studies: Second	
Course: Fixed Prosthodontics	
Course Leader (Name, middle letter, surname): Aleksandar B. Todorović	
Course status (compulsory/elective): Compulsory	
ECTS: 12	**Year of the study: V/ 9th and 10th semesters**
Entry requirements (passed exams from the previous years):	**Course code: ST20FSPR**

Objectives of the course:
To train the students to perform the clinical phases in fixed restorations production by their own

Outcomes of the course:
After the mastering student should be able to:
1. Have the knowledge required to determine the diagnosis and choose the most optimal therapy with fixed restorations reconstruction in dental practice
2. Have the knowledge required to make the preparation of the teeth for different fixed restorations singly in dental practice (crowns, bridges)
3. Have the knowledge required to choose the optimal material necessary for fixed restorations production
4. Have the knowledge required to select the optimal technique and material in impression taking procedures
5. Have the knowledge required to carry out all clinical phases during the treatment with fixed restorations according to gnathological principles
6. Have the skills and knowledge to carry out the cementation procedure as the final step in fixed restorations implementation
7. Have the knowledge of how to recognize different craniomandibular dysfunctions on their own

Contents of the course: The main strategy of this course is to train the students and prepare them to do the clinical phases in fixed restorations production. The theoretical lectures are dedicated to different topics such as: tooth preparation procedures, temporary fixed restorations, fabricating impressions, jaw relation procedures, application of the articulators, try in procedure, and cementation proceedings as final act. The lectures are well documented with current information showing their actuality through different clinical and laboratory cases.

Recommended literature:
1 Rosenstiel S: Contemporary fixed prosthodontics, 4th.ed, St. Louis, Missouri: Mosby; 2006, p. 5-868

Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.

Total number of classes of active teaching and learning:				
Lectures: 45	Practicals: 180	Other modes of teaching:	Research paper:	Professional practice/ independent learning: 60

Teaching and learning methods:

Assessment (maximum number of points: 100)			
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	3	Written Test	
Participation in practicals	27	Practical exam	20
Mid-term test (s)	10	Oral exam	40
Seminars			
Other			

Table 5.2 Subject specification

Study Programme: Integrated Studies of Dental Medicine	C30
Level of studies: Second	
Course: Clinical Periodontology	
Course Leader (Name, middle letter, surname): Zoran M. Aleksic	
Course status (compulsory/elective): Compulsory	
ECTS: 10	**Year of the study: V/ 9th semester**
Entry requirements (passed exams from the previous years):	**Course code: ST20PAR2**
Objectives of the course: Training the students to determine the prognosis and to create a treatment plan of periodontitis, to perform the initial periodontal therapy, and to know periodontal surgical procedures which should be used in the treatment of periodontitis and mucogingival conditions.	
Outcomes of the course: Following the completion of the course, the student should be able to: - determine the prognosis and to create a treatment plan of periodontal disease - diagnose and treat the periodontal emergencies - perform all the procedures within the initial (nonsurgical) periodontal therapy - perform scaling and root planing - know the ndications and contraindications for the surgical therapy of periodontitis and mucogingival conditions - diagnose the symptoms and signs of occlusal trauma - perform occlusal adjustment - perform supportive periodontal therapy - diagnose and treat the recurrence of periodontal disease	
Contents of the course: Determination of prognosis. Treatment plan of periodontal disease. Nonsurgical periodontal therapy. Periodontal emergencies (acute periodontal abscesses, acute necrotizing ulcerative gingivitis). Occlusal evaluation and therapy. Aggressive periodontitis. Surgical therapy of periodontitis (the flap technique for pocket therapy, resective and reconstructive periodontal surgery, furcation involvement and treatment). Periodontal plastic surgery. Pre-prosthetic periodontal surgery. Restorative interrelationships. Endo-periodontal lesions. Orthodontic treatment of periodontally compromised patients. Standard implant surgical procedures. Localized bone augmentation and implant site development. Supportive periodontal treatment. Recurrence of periodontal disease. Periodontal medicine.	
Recommended literature: Lindhe J. Lang NP, Karing T. Clinical periodontology and implant dentistry,2 Volume Set 6th Edition. New York: Wiley; 2017. (Pg. 216-351, 414-429, 519-808)	
Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.	

Total number of classes of active teaching and learning:				
Lectures: 30	Practicals: 45	Other modes of teaching:	Research paper:	Professional practice/ independent learning: 60

Teaching and learning methods:			
Assessment (maximum number of points: 100)			
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	3	Written Test	
Participation in practicals	27	Practical exam	30
Mid-term test (s)	10	Oral exam	30
Seminars			
Other			

Table 5.2 Subject specification

Study Programme: Integrated Studies of Dental Medicine	C31
Level of studies: Second	
Course: Endodontics	
Course Leader (Name, middle letter, surname): Slavoljub A. Živković	
Course status (compulsory/elective): Compulsory	
ECTS: 11	**Year of the study: V/ 9th and 10th semesters**
Entry requirements (passed exams from the previous years):	**Course code: ST20ENDO**

Objectives of the course:
Gaining the necessary knowledge and skills for unaided realization of the endodontic treatment, proper diagnosis and therapy of teeth with diseased pulp and apical periodontium

Outcomes of the course:
After completing the course, the student should be able to:
-Possess knowledge of unaided diagnosis and differential diagnosis of pulp disease and apical periodontium
-Possess the skills necessary for mastering and applying the methods for the therapy of diseased vital pulp (biopulpectomy, necropulpectomy) in the teeth with simple canal system
-Possess the skills necessary for mastering and applying the methods of therapy of diseased nonvital pulp (necrosis, gangrene) and apical periodontal disease in the teeth with simple canal system
-Demonstrate the knowledge and skills of the indications and administration of intersession medication
-Demonstrate the knowledge and skills of knowing the application of materials and methods of definitive root canal obturation
-Demonstrate the knowledge of recognition of faults and complications during endodontic therapy as well as indications for repeated endodontic therapy
-Demonstrate the knowledge of different canal retention systems for restoration endodontically treated teeth
-Demonstrate the knowledge and skills of knowing the etiological factors of tooth crown discoloration, methods and techniques of bleaching endodontically treated teeth
-Demonstrate the knowledge and skills necessary for recognizing root fractures and determining the possibilities for dental therapy depending on the location of tooth fracture and pathophysiological state of the pulp and periodontium
-Demonstrate the knowledge and skills related to emergencies in endodontics and how to manage them

Contents of the course:
Asepsis and antisepsis in endodontics; Pain in endodontics; Diagnosis and differential diagnosis of pulp and apical periodontal disease (symptomatic and asymptomatic diseases); X-ray of apical periodontal disease; Endo- perio lesion; Endodontic therapy of symptomatic and asymptomatic pulp and apical periodontal diseases; Pharmacotherapy and application of new technologies in endodontic practice; Urgent endodontic treatment; Endodontic aspect of internal and external resorption ; Errors and complications of endodontic treatment; Endodontic retreatment; Dynamics of reparation after endodontic treatment; Endodontic surgical treatment; Odontogenic tumors; Restoration of endodontically treated teeth; Whitening of endodontically treated teeth
Endodontic therapy in risk patients

Recommended literature:
1. Bergenholtz G, Horsted-Bindslev P, Reit C. Textbook of Endodontology, Wiley-Blackwell; 2 edition (December 21, 2009)
2. Tronstad L. Clinical Endodontics, Thieme; 3 edition (January 1, 2011)

Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.

Total number of classes of active teaching and learning:				Professional practice/ independent learning: 60
Lectures: 30	Practicals: 135	Other modes of teaching:	Research paper:	

Teaching and learning methods:

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	3	Written Test	20
Participation in practicals	27	Practical exam	10
Mid-term test (s)	8	Oral exam	30
Seminars	2		
Other			

Elective Block 5
Root Canal Obturation - Obturation Techniques and Materials
Rotary Instruments in Endodontics
Treatment Planning for Chronic Periapical Inflammatory Lesions
Root Canal Chemical Treatment During Endodontic Therapy
Pain Management in Endodontics
Visualization Methods in Endodontics
Calcium Silicate Cements in Endodontics
Irrigation Systems and Endodontic Protocols
Application of Diode Lasers in Pediatric Dentistry
Dental Care for Children with Medical Risks
Dental Treatment of Patients with Special Care Needs
Child Abuse and Neglect
Chemoprophylaxis of Oral Diseases in Childhood
Complex Surgical Treatment of Jaw Cysts
Periapical Microsurgery
Radiographic Techniques in Oral Surgery
Complex Surgery of Impacted Teeth
Medically Compromised Patients in Oral Surgery
Complex Therapy of Dentogenic Infections
Pain Control Using Special Anesthesia Techniques in Oral Surgery
Biomaterials in Regenerative Periodontal Treatment
Periodontal-Restorative Interrelationships
Gingival Recessions
Tissue Engineering in Periodontology
Specific Forms of Fixed Dental Restorations
Esthetic Principles of Dental Restorations
Ceramic Systems in Prosthodontics
Zirconia in Prosthetic Dentistry
Orofacial Pain in Patients in Dental Prosthetics

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	5E1
Level of studies: Second	
Course: Root Canal Obturation - Obturation Techniques and Materials	
Course Leader (Name, middle letter, surname): Mirjana G Vujašković	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: V / 10th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_5_01**

Objectives of the course:
Acquiring knowledge of bio-physical properties of various types of root canal sealers and methods of root canal obturation.

Outcomes of the course:
After completing the course, students should be able to:
- explain and analyze biophysical properties of the root canal sealers (advantages and disadvantages)
- select the appropriate root canal sealer according to endodontic pathology (inflammatory resorption...) and permanent restoration,
- make a plan of the root canal obturation and chose adequate methods of obturation,
- perform application of root canal sealers,
- explain and perform compaction technique of cold and warm gutta percha cones (advantages and disadvantages),
- make a plan for using a cement or a paste as a root canal sealer for obturation single
- or multiple root canal systems,
- consider if apicoectomy is indicated after an endodontic therapy,
- know the possibilities of final crown restoration,
- analyze and monitor the outcomes of endodontic therapy

Contents of the course:
Biophysical properties of the conventional and novel root canal sealers (advantages and disadvantages); Types of sealers; Sealer placement; Core materials ; Methods of obturation, lateral compaction, warm vertical compaction, thermoplastic injection technique, carrier based gutta-percha-thermafil, thermomechanical compaction,solvents technique, monocone gutapercha with greater conicity ;type of sealers and methods of obturation depending on the type of restoration of endodontic treated teeth; monitor endodontic treatment outcomes

Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.

Recommended literature:
1. Cohen S. Hargreaves K.M. Pathways of the pulp. Mosby Elsevier, 9th ed St. Louis, 2009. (358-400).
2. Bergenholtz G, Horsted-Bindslev P, Reit C. Textbook of Endodontology, 2nd ed. Wiley-Blackwell, UK, 2010.(277-289).

Total number of classes of active teaching and learning:				Professional practice/ independent learning: 15
Lectures: 15	Practicals:	Other modes of teaching : 15	Research paper:	

Teaching and learning methods

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals			
Mid-term test(s)			
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	5E2
Level of studies: Second	
Course: Rotary Instruments in Endodontics	
Course Leader (Name, middle letter, surname): Slavoljub A. Živković	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: V / 10th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_5_02**

Objectives of the course:
Introducing and training students with the concepts of root canal preparation with different systems of Ni-Ti rotary files

Outcomes of the course:
After completing the course, the students should be able to:
-Demonstrate knowledge of the basic characteristics of Ni-Ti instruments
-Select an adequate set of instruments for the appropriate indication
-Demonstrate knowledge of the basic concept of root canal preparation by rotary Ni-Ti instruments
-Demonstrate skills of working with Ni-Ti instruments with reciprocal movements
-Demonstrate knowledge of the problems and complications that may occur during manipulation with rotary instruments

Contents of the course:
Basic physical and mechanical characteristics of Ni-Ti instruments, basic concepts of preparation with rotary instruments, basic prerequisites for proper selection of Ni -Ti instruments, problems during machine instrumentation

Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.

Recommended literature:
1. Tronstad L. Clinical Endodontics, Thieme; 3 edition (January 1, 2011)

Total number of classes of active teaching and learning:				Professional practice/ independent learning: 15
Lectures: 15	Practicals:	Other modes of teaching : 15	Research paper:	

Teaching and learning methods

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	5E3
Level of studies: Second	
Course: Treatment Planning for Chronic Periapical Inflammatory Lesions	
Course Leader (Name, middle letter, surname): Nevenka S Teodorović	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: V / 10th semester**
Entry requirements (passed exams from the previous years):passed exam in Preclinical endodontics	**Course code: I_5_03**
Objectives of the course: To gain knowledge of the etiology of chronic periapical inflammatory lesions, clinical symptoms and characteristics of these lesions, new concepts and treatment protocol for root canal infection.	
Outcomes of the course: After completing the course student is trained to diagnose the disease , to perform biomechanical instrumentation of root canal infection, to use irrigation techniques and medication of infected root canal and to perform definitive root canal obturation using new materials based on calcium silicate cement.	
Contents of the course: Classification of chronic periapical inflammatory lesions; Etiology and pathogenesis of this disease; Diagnosis and differential diagnosis of chronic inflammatory lesions; Biomechanical instrumentation and selection of instruments for root canal preparation; Methodology, irrigating solutions and medication of infected root canal; Calcium silicate cements for definitive root canal obturation.	
Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.	
Recommended literature 1. **Bergenholtz G, Horsted-BindslevP, Reit C. Textbook of Endodontology, 2nd eds, Wiley-Blackwell, Chichester, UK, 2010.pages:113-156;193-216;235-253**	

Total number of classes of active teaching and learning: 30				Professional practice/ independent learning: 15
Lectures:15	Practicals:	Other modes of teaching :15	Research paper:	

Teaching and learning methods			
Assessment (maximum number of points: 100)			
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	5E4
Level of studies: Second	
Course: Root Canal Chemical Treatment During Endodontic Therapy	
Course Leader (Name, middle letter, surname): Branislav V. Karadžić	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: V / 10th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_5 _04**
Objectives of the course: Acquiring knowledge of the current concepts of root canal chemical treatment during endodontic therapy	
Outcomes of the course: After successful completion of the course, the student should be able to: -Explain the properties and effects of medicaments used during a chemical treatment of the root canal system, -Differentiate between the techniques and methods for root canal irrigation and decalcification -Describe the concepts and dosage of medicaments used during chemical treatment of a root canal -Analyze preventive measures which eliminate complications of using medicaments and methods for treating complications.	
Contents of the course: Canal system morphology in terms of the possibilities and limitations of a mechanical treatment during endodontic therapy. Medicaments used during endodontic therapy, with their chemical effects on pulp remnants, smear layer and hard wall of root canal, and their ability to dilute, soften and remove them from the canal system. Irrigation protocols and ways to solve the problems related to hard patency of the canal system.	
Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.	
Recommended literature: 1. Bergenholtz G ,Horsted-Bindslev P, Reit C.: TEXTBOOK OF ENDODONTOLOGY ; 2nd edition ,2010 , Wiley-Blackwell Ltd. 2. KM .Hargreaves ,LH Berman, Cohen's Pathways of the pulp , 11th edition ,2016, Elsevier Inc, St Louis.	

Total number of classes of active teaching and learning:				Professional practice/ independent learning: 15
Lectures: 15	Practicals:	Other modes of teaching : 15	Research paper:	
Teaching and learning methods				

Assessment (maximum number of points: 100)			
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	5E5
Level of studies: Second	
Course: Pain Management in Endodontics	
Course Leader (Name, middle letter, surname): Jugoslav M. Ilić	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: V / 10th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_5_05**
Objectives of the course: Acquiring knowledge of the biological background of odontogenic and non-odontogenic orofacial pain, the multidimensional nature of pain, the importance of pain symptoms in endodontic diagnosis, and clinical procedures in successful preoperative and postoperative pain management in endodontic procedure.	
Outcomes of the course: After completing the course, the students should be able to: - describe anatomical and pathophysiological background of orofacial pain - differentiate pain of endodontic origin and other types of orofacial pain - associate the type of pain with pathological processes in the dental pulp and periapical dental tissues - explain anaesthetic procedures and medicaments in endodontics - determine appropriate anaesthesia for endodontic procedures - describe analgesic procedures in endodontics - determine the need for anxiolytic premedication for endodontic treatment - plan the pain–management strategy for a particular clinical situation	
Contents of the course: Pain definitions; classification of pain and pain types; the multidimensional nature of pain; the importance of pain symptoms in endodontic diagnosis; types of anaesthesia; techniques for appropriate anaesthesia in endodontics; failure of anaesthetic procedure; postoperative endodontic pain; analgesics in endodontics; the use of anxiolytics in endodontic pretreatment; sedation and general anesthesia in endodontics; pain–management strategies for different clinical situations.	
Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.	
Recommended literature: 1. Närhi M. Dentinal and pulpal pain. In: Textbook of endodontology. Bergenholtz G, Horsted-Bindslev P, Reit C. Wiley Blackwell, Chichester, UK, 2010. Pages 33-46. 2. Eli I and Svensson P. The multidimensional nature of pain. In: Textbook of endodontology. Bergenholtz G, Horsted-Bindslev P, Reit C. Wiley Blackwell, Chichester, UK, 2010. Pages 277-289. 3. Keiser K, Byrne BE. Endodontic pharmacology. In: Hargreaves HM, Cohen S. Cohen´s pathways of the pulp. Mosby Elsevier, St. Louis, 2011. Pages: 671-690. 4. Reader AW, Nusstein JM, Hargreaves HM. Local anesthesia in endodontics. In: Hargreaves HM, Cohen S. Cohen´s pathways of the pulp. Mosby Elsevier, St. Louis, 2011. Pages 691-719.	

Total number of classes of active teaching and learning:				Professional practice/ independent learning: 15
Lectures: 15	Practicals:	Other modes of teaching : 15	Research paper:	

Teaching and learning methods: seminars, small groups, discussion sessions, literature analysis reports, individual and group case studies and reports.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other learning activities	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	5E6
Level of studies: Second	
Course: Visualization Methods in Endodontics	
Professor in charge : Katarina R. Beljic-Ivanovic	
Course status: selective	
ECTS: 3	**Year of the study: V / 10th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_5_06**

Objectives of the course:
To introduce students to all techniques and means for better and more precise diagnostics, therapy plan, follow-up after an endodontic treatment of the pulp and apical tissue diseases, and armamentarium for illumination and magnification.

Outcomes of the course:
After completing the course and passing the exam, the students should be able to:
- have knowledge of the advantages and disadvantages of radiographic diagnostic means and techniques;
- differentiate between 2D and 3D radiographs and indications for their use;
- know the basics of analysing 3D images, and their importance and significance in endodontics;
- have knowledge of the fundamental parts of an operating microscope and methods for using in the clinical practice

Contents of the course:
Classification and definition of 2D radiographic extra and intraoral techniques with their specific application and use in endodontics.
3D extraoral radiographic methods with detailed analysis of teeth, surrounding anatomical structures and pathological processes.
Presentation of equipment and means for magnification and illumination of the working field: magnification glasses, operating microscope, endoscope and their significance in the clinical work.

Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.

Recommended literature:
Castellucci A: Endodontic Radiography (in Endodontics part I, Castellucci A). Il Tridente; 2004; 66-136.
Carr G: The Use of Operating Microscope in Endodontics (in Endodontics part III, Castellucci A). Il Tridente, 2009; 956-998.
Patel S, Durack C, Abella F, Shemesh H, Roiq M, Lemberg K: Cone Beam Computed Tomography in Endodontics – A review. Int Endod J, 2015; 48(1): 3-15.
Beljic-Ivanovic K:Diagnosis and management of a rare case of a maxillary second molar with two palatal roots supported by conventional radiographs and CBCT. *Cone Beam*, 2015; 2: 26-29.

Total number of classes of active teaching and learning: 30				Professional practice/ independent learning: 15
Lectures: 15	Practicals:	Other modes of teaching : 15	Research paper:	

Teaching and learning methods
Small group work, analysis of intra and extraoral radiographs, presentation of photographs from microscope and endoscope, seminars, interactive discussions, presentation and analysis of the clinical situations and cases.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	5E7
Level of studies: Second	
Course: Calcium Silicate Cements in Endodontics	
Course Leader (Name, middle letter, surname): Violeta S. Petrović	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: V / 10th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_5_07**

Objectives of the course:
Acquiring knowledge of the composition, properties and clinical application of calcium silicate cements used in endodontic therapy of teeth.

Outcomes of the course:
After successful completion of this course, the student should be able to:
- Describe the composition and setting reactions of calcium silicate cements
- Explain the influence of the bonding reactions on physical, chemical and biological properties of the material
- Explain the significance of the biological properties for clinical application of the material
- Identify differences in the composition and properties of different dental calcium silicate cements (Mineral trioxide aggregate, Biodentine)
- Identify indications for the application of the material
- Describe the clinical procedure for the application of the material in different indications
- Critically analyze the advantages of the calcium silicate cements compared to traditional materials

Contents of the course:
Composition of the dental calcium silicate cements; setting reactions and setting time; physical and chemical properties; biocompatibility and bioactivity; disadvantages; differences in composition and properties of different commercial products (Mineral trioxide Aggregate, Biodentine); indications for clinical applications, instruments for material application in certain indications; advantages of calcium silicate cements compared to traditional materials.

Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.

Recommended literature:
1. Camilleri J. Mineral trioxide aggregate in Dentistry. Springer 2014. Pages 1-214.
2. Hargreaves HM, Cohen S. Cohen' pathways of the pulp. Mosby Elsevier, St. Louis, 2016. Pages 376-377, 421-422, 462-464, 468-471, 587-588, 766.

Total number of classes of active teaching and learning:				Professional practice/ independent learning: 15
Lectures: 15	Practicals:	Other modes of teaching : 15	Research paper:	

Teaching and learning methods: The course is organized as interactive work in a small group in the form of short theoretical introduction by the teacher, student's individual report to the group on a specific topic based on the analyzed literature, group discussion on a specific topic. The final exam consists of a written test.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine				5E8
Level of studies: Second				
Course: Irrigation Systems and Endodontic Protocols				
Course Leader (Name, middle letter, surname): Vanja N. Opačić Galić				
Course status (compulsory/elective): Elective				
ECTS: 3			**Year of the study: V / 10th semester**	
Entry requirements (passed exams from the previous years):			**Course code: I_5_08**	
Objectives of the course: To gain knowledge about the importance of the protocols and irrigation during root canal preparation and permanent canal obturation, including the role of the irrigant during pulp therapy complications.				
Outcomes of the course: After completing the course, the students should be able to: - Describe the irrigants used for endodontic therapy - Know the mechanisms of their action - Know how to activate the irrigants for more effective results - Choose the adequate combination of irrigants for solving specific therapeutic problems - Knows the side effects of irrigant agents				
Contents of the course: Irrigants in everyday endodontic practice. Ways of their action, indication and contraindication for use. Interactions between irrigants. Contemporary ways of irrigants activation. Benefits of removing debris, biofilm or medicaments before definitive root canal system opturation. Alternative irrigants (phytotherapy). Benefits of irrigation in the cleaning phase and shaping the canal system in uninfected cases and especially in cases of infected root canals and their complications.				
Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.				
Recommended literature: 1. Bergenholtz G, Horsted-Bindslew P, Reit C. Textbook of Endodontology. Second edition. Wiley-Blackwell 2010. Chapter 6 and 9; pp 95-112, 140-159. 2. GH Haapasalo, Shen Y, Wang Z., Gao Y. Irrigation in endodontics. Br Dent J. 2014;216(6):299-303 3. Darcey J, Jawad S, Taylor C, Roudsari RV, Hunter M. Modern Endodontic Principles Part 4: Irrigation. Dent Update 2016;43(1):20-2, 25-6,28-30.				
Total number of classes of active teaching and learning:				Professional practice/ independent learning: 15
Lectures: 15	Practicals:	Other modes of teaching : 15	Research paper:	
Teaching and learning methods: Small group work, seminars, interactive discussions				
Assessment (maximum number of points: 100)				
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**		
Participation in lectures		Written defense of a project on a chosen topic	60	
Participation in practicals		Practical exam		
Mid-term test(s)		Oral exam		
Seminars	20			
Other	20			

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	5E9
Level of studies: Second	
Course: Application of Diode Lasers in Pediatric Dentistry	
Course Leader (Name, middle letter, surname): Jelena Č. Mandić	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: V / 10th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_5_09**
Objectives of the course: Acquiring knowledge of the basics of laser technology, multidisciplinary indications for their application, as well as gaining knowledge of clinical procedures for the use of diode lasers on soft tissues of the oral cavity in children.	
Outcomes of the course: After completing the course and passing the exam, the student should be able to: - Explain the mechanism of laser beam action on oral tissues in children - Recognize the indications for the use of diode laser in children - Describe the procedures for diode laser operation in pediatric dentistry - Recognize the need for using a diode laser in relation to other surgical techniques in children - Describe the effects and outcomes of laser light on soft tissues in children (excision, coagulation, denaturation, sterilization, etc.) - Develop an effective plan for pain control and postoperative treatment of the treated tissue in children	
Content of the course: Definition, types and classification in preventive and therapeutic application of laser beam in children; multidisciplinary application of laser beam in dentistry; importance of diode laser application in soft tissue surgery in children; the importance of the diode laser in the coagulation, ablation and vaporization of oral soft tissue lesions, the importance of the postoperative sterile field in surgery and endodontics using a soft beam diode laser.	
Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.	
- **Recommended literature:** - Parkins F. Laser in pediatric and adolescent dentistry. Dent Clin North AM 2000; 44(4): 821-30. - Kotlow L. Lasers and soft tissue treatments for the pediatric dental patient. Alpha Omegan 2008;101(3): 140- 51. - Azma E, Safavi N. Diode laser application in soft tissue oral surgery. J Lasers Med Sci 2013;4:206-11 - Asnaashari M,Mehdipour M,MoradiAbbasabadi F,Azari-Marhabi S. Expedited removal of pyogenic granuloma by diode laser in a pediatric patient. J Lasers Med Sci 2015;6:40-4 Asnaashari M, Mohebi S, Paymanpour P. Pain reduction using low level laser irradiation in single-visit endodontic treatment. J Lasers Med Sci. 2011;2(4):139–43.	

Total number of classes of active teaching and learning:				Professional practice/ independent learning: 15
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods			
Assessment (maximum number of points: 100)			
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals	20	Practical exam	
Mid-term test(s)		Oral exam	
Seminars			
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	5E10
Level of studies: Second	
Course: Dental Care for Children with Medical Risks	
Course Leader (Name, middle letter, surname): Olivera M. Jovičić	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: V / 10th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_5_10**

Objectives of the course: Acquiring knowledge of the prevention of oral diseases in patients with medical risks, including the specifics of their dental disposal

Outcomes of the course: After completing the course and passing the exam, the student should be able to:
- Recognize the oral manifestations of various systemic diseases
- Define the risks and specifics of dental care for patients with medical risks
- Make a selection of preventive and prophylactic measures according to the basic diagnosis and individual characteristics of the patient
- Define specific dental therapeutic measures and code of procedures in patients with medical risks
- Make a plan and define priorities in dental care patients with medical risks
- Selects the most appropriate method of dental care for patients with medical risks

Content of the course:
Definition, type and classification of various diseases and syndromes in terms of medical risks, the impact of the primary disease on oral health condition, impact of impaired oral health on primary disease, appearance of developmental anomalies of the teeth and orofacial system in patients with medical risks, determining dental care plan, patients premedication, specifics of performing different dental procedures, risks and precautions in the postoperative period.

Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.

Recommended literature:

1.Cameron CA, Widmer PR et al. Medically compromised children. In: Handbook of pediatric dentistry. Mosby, Third edition 2008; 279-338
2.American Academy of Pediatric Dentistry Clinical Affairs Committee; American Academy of Pediatric Dentistry Council on Clinical Affairs 2005–2006. Guideline on dental management of pediatric patients receivingchemotherapy, hematopoietic cell transplantation, and/or radiation. Pediatric Dentistry 27(7 ReferenceManual):170–175
3.da Fonseca MA. Dental care of the pediatric cancer patient. Pediatric Dentistry, 2004; 26:53–57
4. Nylund KM, Meurman JH, Heikkinen AM, Furuholm JO, Ortiz F, Ruokonen HM. Oral health in patients with renal disease: a longitudinal study from predialysis to kidney transplantation. Clinical Oral Investigations. 2018; 22(1):339-47.
5. Uutela P, Passweg J, Halter J, Weiger R, Waltimo T, Mauramo M. Common oral diseases in allogeneic haematopoietic stem cell transplantation (HSCT) recipients pre-HSCT. Eur J Haematol. 2019; 102(4):351-356
6. Osiak M, Szubinska-Lelonkiewicz D, Wychowanski P, Karakulska-Prystupiuk E, Jedrzejczak W, Wojtowicz A, Fiedor P. Frequency of Pathologic Changes in the Oral Cavity in Patients Subjected to long-term Pharmacologic Immunosuppressive Therapy After Kidney, Liver, and Hematopoietic Cell Transplantation. Transplantation Proceedings. 2018; 50(7):2176-2178
7. Little JW, Falace DA. Dental management of the medically compromised patient. Mosby Year Book, St. Louis 2002.
8. Wilson W, Taubert KA, Gewitz M et al. Prevention of infective endocarditis. Prevention of infectiveendocarditis: Guidelines from the American Heart Association. A guideline from the American HeartAssociation Rheumatic Fever, Endocarditis and Kawasaki Disease Committee, Council on CardiovascularDisease in the Young, and the Council on Clinical Cardiology, Council on Cardiovascular Surgery andAnesthesia, and the Quality of Care and Outcomes Research Interdisciplinary Working Group. Journal ofthe American Dental Association 2007. 138:739–760.

Total number of classes of active teaching and learning:				Professional practice/ independent learning: 15
Lectures: 15	Practicals:	Other modes of teaching : 15	Research paper:	

Teaching and learning methods:

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	5E11
Level of studies: Second	
Course: Dental Treatment of Patients with Special Care Needs	
Course Leader (Name, middle letter, surname): Markovic Lj. Dejan	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: V / 10th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_5_11**

Objectives of the course:
Undergraduate students should be able to provide urgent treatment and adequate attitude toward dental patients with special care needs. The aim is to remove stigmatization and improve dental care for patients with special care needs, including preventive, prophylactic interventions, therapeutic procedures needed, and to gain enough knowledge to ensure the appropriate decision regarding the best possible individual treatment plan involving behavioral management, sedation or GA dental treatment.

Outcomes of the course:
After completing the course, students should be able to demonstrate knowledge of:
- The epidemiological and socio-economic profile of patients with special care needs in a population
- The most common disabilities
- Communication skills needed for a dental treatment of patients with disabilities
- Medical aspects of a dental treatment of patients with special care needs
- Oral pathology in patients with special care needs
- The dental care of patients with special care needs, including preventive, prophylactic and therapeutic procedures needed.

Contents of the course:
The importance of the course. Description of the most common oral pathology in special care needs patients. Building and improving communication skills with special care needs patient during preparation for dental treatment or during a dental treatment itself. Preventive and prophylactic procedures in patients with special care needs – the importance of proper oral hygiene. Behavioral management. Premedication and sedation. Dental treatment under GA. Case reports.

Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.

Recommended literature:
Dental Care of the Medically Complex Patient, By Peter B. Lockhart, June H. Nunn, John G. Meechan. Published 2004 Elsevier Health Sciences.

Total number of classes of active teaching and learning:				Professional practice/ independent learning: 15
Lectures: 15	Practicals:	Other modes of teaching : 15	Research paper:	

Teaching and learning methods

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals	30	Practical exam	
Mid-term test(s)		Oral exam	
Seminars	5		
Other	5		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine				5E12
Level of studies: Second				
Course: Child Abuse and Neglect				
Course Leader (Name, middle letter, surname): Zoran R. Vulicevic				
Course status (compulsory/elective): Elective				
ECTS: 3			**Year of the study: V / 10th semester**	
Entry requirements (passed exams from the previous years):			**Course code: I_5_12**	
Objectives of the course: Introducing students to the signs of abuse and neglect of children and young people, getting acquainted with different types of abuse and their effects on oral and general health				
Outcomes of the course: After completing the course and passing the exam, the student should be able to: - recognize persons who are victims of abuse and neglect - communicate with persons who have been abused and neglected - make appropriate medical records of abuse and neglect - refer the abused and neglected persons to the appropriate institution				
Contents of the course: Definition, types and classifications of neglect and abuse, record keeping in cases of abuse and neglect, recognition of different psychological types of children and young persons.				
Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.				
Recommended literature: Thompson SL, Sanders BJ, Hibbard RA. Child Abuse and Neglect. In: McDonald and Avery's dentistry for the child and adolescent, Tenth edition,Elsevier 2016. Pages 110-119. Harris JC, Welbury R. Safeguarding children. In: Welbury R, Duggal MS, Hosey MS (editors). Paediatric dentistry. Fourth edition. Oxford University Press 2012. Pages 371-388.				
Total number of classes of active teaching and learning:				Professional practice/ independent learning: 15
Lectures: 15	Practicals:	Other modes of teaching : 15	Research paper:	
Teaching and learning methods				
Assessment (maximum number of points: 100)				
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**		
Participation in lectures		Written defense of a project on a chosen topic	60	
Participation in practicals		Practical exam		
Mid-term test(s)		Oral exam		
Seminars				
Other (activity during the course)	40			

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine				5E13
Level of studies: Second				
Course: Chemoprophylaxis of Oral Diseases in Childhood				
Course Leader (Name, middle letter, surname): Vanja V. Petrović				
Course status (compulsory/elective): Elective				
ECTS: 3			**Year of the study: V / 10th semester**	
Entry requirements (passed exams from the previous years):			**Course code: I_5_13**	
Objectives of the course: To enable students to independently create a therapy plan for chemoprophylactic measures according to different clinical situations in pediatric dentistry				
Outcomes of the course: After successfully completing the course, the student should be able to: - Determine the indications for the use of chemoprophylaxis - Specify the type and form of the prescribed agent - Specify the concentration and length of administration of the prescribed agent according to the indications and the age of individual patients				
Contents of the course: Definition, indications for the use of chemoprophylaxis agents in accordance with clinical cases, including patients with special needs.				
Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.				
Recommended literature: Required : (total: 376 pages) 1. Koch G. et al. Pediatric dentistry, a clinical approach. Third edition. Wiley Blackwell 2017. (pages 1-376)				
Total number of classes of active teaching and learning:				Professional practice/ independent learning: 15
Lectures: 15	Practicals:	Other modes of teaching : 15	Research paper:	
Teaching and learning methods: Small groups, interactive discussions, case reports.				
Assessment (maximum number of points: 100)				
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**		
Participation in lectures		Written defense of a project on a chosen topic	60	
Participation in practicals	20			
Mid-term test(s)				
Seminars				
Other	20			

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	5E14
Level of studies: Second	
Course: Complex Surgical Treatment of Jaw Cysts	
Course Leader (Name, middle letter, surname): Snježana B. Čolić	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: V / 10th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_5_14**

Objectives of the course:
Gaining knowledge of the complex procedures used in the treatment of large jaw cysts which jeopardize the adjacent anatomical structures in order to avoid injury of these structures and to ensure successful regeneration of bone tissue.

Outcomes of the course:
After completing the course and passing the exam, the student should be able to:
- establish a diagnosis of the jaw cyst based on the radiograms,
- determine whether there is a risk of injury of adjacent anatomical structures and how the injury can be avoided
- make a treatment plan for each type of jaw cysts
- describe the therapeutic procedure for removal of jaw cysts
- recognize possible complications and ways to avoid or minimize them

Contents of the course:
Diagnosis of jaw cysts based on radiogram analysis; characteristics of different jaw cysts; differential diagnosis with respect to other cystic lesions; literature review; methods and techniques used in the treatment of jaw cysts; complete procedures of different techniques for the enucleation and decompression of jaw cysts; development of a therapy plan; identifying the risk of injury to adjacent anatomical structures; identifying the risk of intraoperative and postoperative complications; monitoring of postoperative healing in order to diagnose relapse.

Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.

Recommended literature:
1. Ellis E. Surgical management of oral pathologic lesions. In: James R Hupp, Edward Ellis III, Myron R Tucker: „Contemporary Oral and Maxillofacial Surgery", Mosby Elsevier, 2008, St.Louis, pp: 449-459

Total number of classes of active teaching and learning:				Professional practice/ independent learning: 15
Lectures: 15	Practicals:	Other modes of teaching : 15	Research paper:	

Teaching and learning methods: Small groups, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars 20			
Other 20			

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	5E15
Level of studies: Second	
Course: Periapical Microsurgery	
Course Leader (Name, middle letter, surname): Božidar M. Brković	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: V / 10th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_5_15**
Objectives of the course: Acquiring clinical knowledge of the microsurgery approach to the treatment of chronic periapical lesions, microscopic and microsurgical techniques and the application of biomaterials for the surgical root canal obturation.	
Outcomes of the course: After completing the course and passing the exam, the student should be able to: - Describe diagnostic procedures using CBCT for the periapical and endo-periodontal lesions - Recognize the indications for periapical microsurgery and types of magnification during surgical work - Relate the success of the results achieved to the application of microsurgical approach - Explain periapical microsurgical procedure and used techniques - Select the appropriate approach to the choice of materials for retrograde or orthograde obturation of the root canal - Present an efficient surgical plan for the microsurgical therapy of periapical and endo-periodontal lesions	
Contents of the course: The definition of the term and the importance of the periapical surgery, the importance and the type of microsurgical approach in the periapical surgery and used techniques, diagnosis of periapical and endo-periodontal lesions using the CBCT technique, selection of magnification in the course of surgical treatment, microsurgical instruments and characteristics of biomaterials in the orthograde and retrograde root canal treatment.	
Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.	
Recommended literature: 1. Crossen D et al. Periapical microsurgery. A 4-dimensional analysis of healing pattern. J Endod 2019,45:402-405. 2. Monaghan L et al. Endodontic microsurgery. Part one: diagnosis, patient selection, and prognoses. Br Dent J 2019,226:940-948. 3. Jadun S et al. Endodontic microsurgery. Part two: armamentarium and technique. Br Dent J 2019,227:101-111. 4. Floratos S, Kim S. Modern endodontic microsurgery concepts: A clinical update. Dent Clin North Am 2017,61:81-91. 5. Kim S, Kratchman S. Microsurgery in endodontics. John Wiley & Sons, Inc. 1st ed. 2017.	

Total number of classes of active teaching and learning: 30				Professional practice/ independent learning: 15
Lectures: 15	Practicals:	Other modes of teaching : 15	Research paper:	
Teaching and learning methods	Small groups, interactive discussions, seminars, presentations and case studies.			

Assessment (maximum number of points: 100)			
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	5E16
Level of studies: Second	
Course: Radiographic Techniques in Oral Surgery	
Course Leader (Name, middle letter, surname): Miroslav M. Andrić	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: V / 10th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_5_16**

Objectives of the course:
To introduce students to the contemporary three-dimensional radiographic techniques used in the clinical practice of oral surgery

Outcomes of the course:
After completing the course, students should be able to:
- Describe radiographic techniques used in oral surgery
- Implement principles of radiation protection
- Establish the indications for radiographic examination in oral surgery
- Recognize radiographic features of common oral pathology
- Interpret radiographic findings in the context of other diagnostic methods

Contents of the course:
Radiographic techniques, MSCT and CBCT, principles of radiation protection, selection of appropriate radiographic techniques, radiographic features of inflammatory, developmental and neoplastic diseases of the oral and maxillofacial region, radiographic planning of surgery – extraction of impacted teeth, odontogenic cysts and tumors, placement of dental implants, radiographic follow up after a removal of cysts and tumors, dental implants placement, reconstructive procedures.

Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.

Recommended literature:
T. A. Larheim, P-L.Westesson: Maxillofacial Imaging. Berlin: Springer; 2006. pp. 1-85; 119-141; 179-197; 267-307

Total number of classes of active teaching and learning:				
Lectures: 15	Practicals:	Other modes of teaching : 15	Research paper:	Professional practice/ independent learning: 15

Teaching and learning methods: Small groups, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	5E17
Level of studies: Second	
Course: Complex Surgery of Impacted Teeth	
Course Leader (Name, middle letter, surname): Bojan M. Gačić	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: V / 10th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_5_17**
Objectives of the course: Acquiring knowledge of the diagnostics, surgical techniques used for extracting impacted teeth, intraoperative and postoperative complications and their resolution.	
Outcomes of the course: After completing the course and passing the exam, the student should be able to: - Recognize the symptomatology of the presence of impacted teeth - Evaluate the ability of the tooth to fit into the dental string - Evaluate the relationship to adjacent anatomical structures by radiographic examination - Set an indication for the extraction of the impacted tooth - Plan the approach and type of incision for the intervention - Explain to the patient the possibility of complications - Introduce the patient to the rules of behavior in the postoperative course	
Contents of the course: Definition of impacted teeth; causes of tooth loss; indications and contraindications for extraction of impacted teeth; radiographic diagnosis of impacted teeth; classification of impacted teeth; surgery planning; selection of incisions for extraction of impacted teeth; types of sutures in surgery of impacted teeth; intraoperative complications; postoperative complications; postoperative care of patients.	
Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.	
Recommended literature: James R Hupp, Edward Ellis III, Myron R Tucker : „ Contemporary Oral and Maxillofacial Surgery", Mosby, Inc., Principles of management of impacted teeth (153-179 p.)	

Total number of classes of active teaching and learning:				Professional practice/ independent learning: 15
Lectures: 15	Practicals:	Other modes of teaching : 15	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	5E18
Level of studies: Second	
Course: Medically Compromised Patients in Oral Surgery	
Course Leader (Name, middle letter, surname): Ljiljana G Stojčev Stajčić	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: V / 10th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_5_18**

Objectives of the course:
Gaining knowledge of the need to verify the increasing number of patients at risk, the impact of the general condition on the course of surgery and the importance of adequate preparation for a safe performance of oral surgery procedures.

Outcomes of the course:
After completing the course and passing the exam, the student should be able to:
- Fully recognize any changes in the general condition of the patient that contribute to the patient being characterized as a patient at risk when it comes to performing oral surgery
- Determine the type of preparation adequate for individual patients
- Selects appropriate medications, local anesthesia techniques, adequate local anesthetic solutions that will be safe for the patient
- Refer the patient to a competent specialist for additional preparations if it is not possible to prepare the patient adequately for the safe performance of dental procedures
.

Contents of the course:
Contemporary complex therapeutic modalities for the treatment of various systemic diseases; the effects of new drugs on the physiological processes of wound healing in the mouth; the impact of new drugs on the physiological processes of hemostasis; the impact of new antiresorptive drugs on the jaw bone tissue; the impact of new chemotherapy drugs on all tissues of the oral cavity; implementing new basic therapy protocols for patients to prepare for dental interventions;

Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.

Recommended literature:
1.Scully C.: Oral and Maxillofacial medicine. Churchill Livingstone Elsevier, 2012.
2.Hupp JR, Ellis E, Tucker MR.: Oral and Maxillofacial surgery. Elsevier Mosby 2014.

Total number of classes of active teaching and learning:				Professional practice/ independent learning: 15
Lectures: 15	Practicals:	Other modes of teaching : 15	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	5E19
Level of studies: Second	
Course: Complex Therapy of Dentogenic Infections	
Course Leader (Name, middle letter, surname): Milan Jurišić	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: V / 10th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_5_19**
Objectives of the course: Acquiring knowledge of the diagnostics, therapy plan, new tendencies and standards of complex therapy of dentogenic infections, including possible complications.	
Outcomes of the course: After completing the course and passing the exam, the student should be able to: - Describe diagnostic procedures as part of the diagnosis of acute dentogenic infections - Recognize indications for conservative and surgical therapy for dentogenic infections - Relate the success of the results achieved to the application of different therapeutic procedures - Explain the procedure for complex therapy of dentogenic infections - Identify the complications of dentogenic infections - Develop an effective plan for surgical and conservative therapy for dentogenic infections	
Contents of the course: Definition, concept and significance of dentogenic infections; upper and lower jaw anatomy; indications for complex therapy of dentogenic infections; basic principles of dentogenic infection therapy; plan for surgical and conservative therapy of dentogenic infections; complications of dentogenic infections.	
Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.	
Recommended literature: 1. Todorovic Lj, Petrovic V, Kafedziska V, Jurisic M .: "Oral Surgery" - 2002 (301 pages) 2. James R Hupp, Edward Ellis III, Myron R Tucker: "Contemporary Oral and Maxillofacial Surgery", Mosby, Inc. "Principles of Management and Prevention of Odontogenic Infections" pp. 291-336	

Total number of classes of active teaching and learning: 30				Professional practice/ independent learning: 15
Lectures: 15	Practicals:	Other modes of teaching : 15	Research paper:	

Teaching and learning methods Small group work, seminars, interactive discussions, case reviews and analysis.			
Assessment (maximum number of points: 100)			
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	5E20
Level of studies: Second	
Course: Pain Control Using Special Anesthesia Techniques in Oral Surgery	
Course Leader (Name, middle letter, surname): Bojan D. Janjić	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: V / 10th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_5_20**

Objectives of the course:
Acquiring knowledge of indications and methods of application of special anesthesia techniques and anatomical parameters necessary for their implementation in order to be able to successfully control preoperative and postoperative pain in the oral-surgical procedure.

Outcomes of the course:
After completing the course and passing the exam, the student should be able to:
- Know the anatomical parameters necessary to perform special anesthesia techniques
- Describe the anatomical and pathophysiological bases of orofacial pain
- Recognize the difference between dental origin pain and periodontium, as well as other types of orofacial pain
- Promptly apply special techniques of anesthesia in the oral cavity for the purpose of diagnostics, surgical interventions and treatment of orofacial pain, as well as to treat complications thereof
- Explain the types of anesthetic procedures in the oral-surgical procedure
- Select an adequate form of basic and supplemental anesthesia

Contents of the course:
Definition, types and classification of pain; routes of transmission of orofacial pain; the importance of pain for diagnosis in oral surgery; anatomy and innervation of the upper and lower jaws; control of intraoperative and postoperative pain; types and applications of special anesthesia techniques in oral surgery; developing a pain control plan for different types of oral surgery; complications during the performance of special methods of anesthesia.

Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.

Recommended literature:
1. Bozidar Brkovic, Radojica Drazic, Radoje Milosavljevic, Ljubomir Todorovic. "Dental Anesthesiology" 2012, p.205
2. James R Hupp, Edward Ellis III, Myron R Tucker: "Contemporary Oral and Maxillofacial Surgery", Mosby, Inc. "Facial Neuropathology" 619-628

Total number of classes of active teaching and learning: 30				Professional practice/ independent learning: 15
Lectures: 15	Practicals:	Other modes of teaching : 15	Research paper:	

Teaching and learning methods
Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	5E21
Level of studies: Second	
Course: Biomaterials in Regenerative Periodontal Treatment	
Course Leader (Name, middle letter, surname): Zoran M. Aleksic	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: V / 10th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_5_21**

Objectives of the course:
To gain knowledge of the basics of passive and active periodontal regeneration and biomaterials used for this purpose

Outcomes of the course:
After completing the course, the student should be able to:
- know the available biomaterials used for passive and active periodontal regeneration
- differentiate between biomaterials and their mechanisms
- demonstrate knowledge of the indications for using each material
- describe materials used in regenerative periodontal treatment
- describe materials used in soft tissue augmentation
- describe surgical techniques in periodontal regeneration
- describe surgical techniques in soft tissue augmentation
- describe biomaterials application in comprehensive periodontal-implant-prosthetic rehabilitation

Contents of the course:
Definition, types and classification of bone substitutes. Definition, types and classification of biomembranes used within the concept of guided bone regeneration (GBR). Definition, types and classification of the materials used for active regeneration. The use of different materials and their combinations. Expected treatment outcomes. Long-term treatment results.

Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.

Recommended literature:
Lindhe J, Lang NP and Karring T. Clinical periodontology and implant dentistry. 5th edition. Wiley-Blackwell, 2009. Pages: 901-955.

Total number of classes of active teaching and learning:				Professional practice/ independent learning: 15
Lectures: 15	Practicals:	Other modes of teaching : 15	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)			
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals			
Mid-term test(s)			
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine				5E22
Level of studies: Second				
Course: Periodontal-Restorative Interrelationships				
Course Leader (Name, middle letter, surname): Natasa S. Nikolic Jakoba				
Course status (compulsory/elective): Elective				
ECTS: 3			**Year of the study: V / 10th semester**	
Entry requirements (passed exams from the previous years):			**Course code: I_5_22**	
Objectives of the course: Expanding students' knowledge regarding the aim and significance of pre-prosthetic periodontal therapy (surgical and orthodontic treatment modalities).				
Outcomes of the course: After completing the course and passing the exam, students should be able to recognize the indications and contraindications for the following surgical procedures involved in the pre-prosthetic periodontal treatment: - crown lengthening - increasing the width of attached gingiva and deepening the vestibule - frenectomy and frenulectomy - root resection/hemisection procedures - gingival recession treatment - management of soft tissue ridge deficiencies - adjunctive orthodontic pre-prosthetic therapy				
Contents of the course: Pre-prosthetic surgery (crown lengthening procedures, biologic width considerations, increasing the width of attached gingiva, deepening the vestibulum, root resection/hemisection procedures, management of mucogingival problems and alveolar soft tissue deficiencies). Adjunctive orthodontic pre-prosthetic therapy.				
Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.				
Recommended literature: 1. Lindhe J. Lang NP, Karing T. Clinical periodontology and implant dentistry,2 Volume Set 6th Edition. New York: Wiley; 2017. (pg. 318-351, 519-561, 577-649, 712-726, 744-771)				
Total number of classes of active teaching and learning:				Professional practice/ independent learning: 15
Lectures: 15	Practicals:	Other modes of teaching : 15	Research paper:	
Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.				

Assessment (maximum number of points: 100)			
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	20	Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other			

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	5E23
Level of studies: Second	
Course: Gingival Recessions	
Course Leader (Name, middle letter, surname): Sasa M. Jankovic	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: V / 10th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_5_23**

Objectives of the course:
Expanding the students' knowledge regarding the importance of gingival recession treatment and the factors that affect the selection of surgical procedure and treatment outcome.

Outcomes of the course:
After completing the course and passing the exam, the students should be able to:
- recognize the indications and contraindications for treatment of single and multiple gingival recessions
- know the surgical procedures for treatment of single and multiple gingival recessions
- recognize the factors that affect the treatment outcome with regard to the gingival recession type

Contents of the course:
Classification of gingival recessions. Favorizing and predisposing factors, etiopathogenetic aspect. Surgical therapy of single and multiple gingival recessions. Surgical techniques for the treatment of gingival recessions (flap design, connective tissue graft, biomembranes, biologicals). Indications and contraindications for the appropriate surgical procedure. Factors that affect the treatment outcome.

Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.

Recommended literature:
1. Lindhe J. Lang NP, Karing T. Clinical periodontology and implant dentistry,2 Volume Set 6th Edition. New York: Wiley; 2017. (pg. 576-649)

Total number of classes of active teaching and learning:				Professional practice/ independent learning: 15
Lectures: 15	Practicals:	Other modes of teaching : 15	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	20	Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other			

Table 5.2 Subject specification

Study Programme: Integrated Studies of Dental Medicine	5E24
Level of studies: Second	
Course: Tissue Engineering in Periodontology	
Course Leader (Name, middle letter, surname): Iva Z Milinkovic	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: V / 10th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_5_24**

Objectives of the course:
Gaining knowledge of the use and possible application of cell cultures, growth factors and tissue matrices in periodontal regeneration promotion, in both *in vitro* and in *in vivo* conditions.

Outcomes of the course:
Following the completion of this course the student should be able to:
- Understand and describe the principles, possibilities and methods of tissue engineering
- Demonstrate knowledge of laboratory procedures for cell isolation, cell culture cultivation and manipulation
- Have a basic knowledge of the application of stem cells in periodontal regenerative treatment
- Have a basic knowledge of the application of cell cultures in periodontal regenerative treatment and soft tissue augmentation
- Have a basic knowledge of different types of cell matrices and tissue matrices
- Have a basic knowledge of the growth factors used in tissue engineering protocols
- Have a basic knowledge of clinical cell culture and tissue constructs' application

Contents of the course:
Definition and possibilities of tissue engineering application in periodontology. Getting to know how the cells are isolated, cultivated and how they create cell cultures. Laboratory and clinical procedures related to tissue engineering. Tissue engineering achievements and limitations in contemporary dentistry and periodontology.

Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.

Recommended literature:
- Murata M, Um I.; Advances in Oral Tissue Engineering, Quintessence Publishing, USA, 2014; (pages 1-84)
- Lynch, Samuel E.; Marx, Robert E.; Nevins, Myron; Wisner-Lynch, Leslie A. Tissue Engineering: Applications in Oral and Maxillofacial Surgery and Periodontics, Second Edition. Quintessence Publishing, 2012. (pages 3-132)
- Milinkovic I, Aleksic Z, Jankovic S, et al. Clinical application of autologous fibroblast cell culture in gingival recession treatment. J Periodontal Res. 2015 Jun;50(3):363-70
- Tavelli L, McGuire MK, Zucchelli G, Rasperini G, Feinberg SE, Wang HL, Giannobile WV. Biologics-based regenerative technologies for periodontal soft tissue engineering. J Periodontol. 2019 Sept. (pages 1-8)

Total number of classes of active teaching and learning:				Professional practice/ independent learning: 15
Lectures: 15	Practicals:	Other modes of teaching :15	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Oral defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine				5E25
Level of studies: Second				
Course: Specific Forms of Fixed Dental Restorations				
Course Leader(Name, middle letter, surname): Aleksandar B. Todorović				
Course status (compulsory/elective): Elective				
ECTS: 3			**Year of the study: V / 10th semester**	
Entry requirements (passed exams from the previous years):			**Course code: I_5_25**	
Objectives of the course: Acquiring knowledge of the indications and contraindications for designing specific forms of fixed dental restorations, minimally invasive therapeutic options, analogue and digital workflow, planning and diagnostic approaches, specification of tooth preparation, taking impressions and temporarization, selection of restorative material: composite, ceramics or hybrid materials, risk factors, complications and causes of failure.				
Outcomes of the course: After completing the course and passing the exam, the student should be able to: - describe the indications and contraindications for developing specific forms of fixed dental restorations; - describe the basics of analog and digital protocol; - describe the basics of tooth preparation; - explain adhesive cementation techniques and types of dental materials; - describe the specificities of different forms and types of specific dental restorations.				
Contents of the course: Indications and contraindications of therapy; Minimally invasive therapeutic options; Analog and digital operation protocol; Planning and diagnostic approach; Analysis of dentofacial and gingival aesthetics; Adhesive techniques in producing fixed dentures; Specific features of tooth preparation, making impression and temporarization; Adhesive cementing; Choice of restorative materials: composite, ceramic or hybrid materials; Adhesive crowns and bridges; Endocrowns; Veneers - vestibular, palatal and occlusal; Tooth abrasions and therapeutic solutions; Risk factors, complications and causes of failures.				
Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.				
Recommended literature: Galip Gurel. Porcelain laminate veneers. London: Quintessence Publ. Co ltd; 2003. Page :231-345.				
Total number of classes of active teaching and learning:				Professional practice/ independent learning: 15
Lectures: 15	Practicals:	Other modes of teaching : 15	Research paper:	
Teaching and learning methods				
Assessment (maximum number of points: 100)				
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**		
Participation in lectures		Written defense of a project on a chosen topic	60	
Participation in practicals		Practical exam		
Mid-term test(s)		Oral exam		
Seminars	20			
Other	20			

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	5E26
Level of studies: Second	
Course: Esthetic Principles of Dental Restorations	
Course Leader (Name, middle letter, surname): Aleksandra Špadijer Gostović	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: V/ 10th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_5_26**
Objectives of the course: Introduction and application of esthetic analyses and esthetic principles of planning and designing fixed, removable and implant supported restorations	
Outcomes of the course: After completing the course, the students should be able to: - participate in planning esthetic aspects of prosthodontic and implant treatment; - perform esthetic analyses, diagnostic wax-up and mock-up procedure; - demonstrate knowledge of the colors in human dentition, conventional and instrumental methods of colour matching and shading.	
Contents of the course: Esthetic dentistry-introduction and development; Clinical esthetic analyses of facial and dentofacial macro-esthetics; Fundamental subjective and objective criteria for esthetic integration; White and pink esthetics; Dental teamwork and demands of interdisciplinary approach in planning, designing, esthetic shaping and producing different types of conventional and implant restorations; Esthetic elements based on photology, light/dark, contrast, assimilation and background effects, importance of photo documentation; Analog and digital workflow; Esthetic considerations in implant prosthodontic therapy; Temporary restorations; Esthetic principles of fixed and removable restorations; Color phenomenon - color perception, expression, harmonization and interaction; Colors in human dentition and their impact on esthetic success; Color determination procedure- shade guide systems and instrumental methods	
Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.	
Recommended literature: Magne P. Belser U.: Porcelain bonded restorations, Quintessence publishing, 2003., pg 23-99, 129-239. Galip Gurel: The Science and Art of Porcelain laminate veneers, Quintessence publishing, 2003.,chapters: 1.,2.,3.,4.	

Total number of classes of active teaching and learning:				Professional practice/ independent learning: 15
Lectures: 15	Practicals:/	Other modes of teaching : 15	Research paper:	

Teaching and learning methods: Small groups, a combination of teacher's theoretical review and individual student participation through literature reviews of relevant topics in esthetic dentistry, analyses of different clinical cases with interactive discussions and a multidisciplinary approach.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)	20	Oral exam	
Seminars	20		
Other			

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	5E27
Level of studies: Second	
Course: Ceramic Systems in Prosthodontics	
Course Leader (Name, middle letter, surname): Kosovka B.Obradović Đuričić	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: V/ 10th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_5_27**
Objectives of the course: To inform students about different ceramic materials treated by technological and laboratory procedures to produce fixed prosthetic dental restorations.	
Outcomes of the course: After completing the course, students should be able to: 1. be informed about the possibilities of using ceramic materials for fabricating fixed dental restorations 2. know the laboratory and practical characteristics of the ceramic systems 3. make proper decisions in terms of the material that will be used in dental therapy	
Contents of the course: The course comprises lectures dealing with the classification of ceramic systems, indications for their use in the practical work, ceramic inlay, onlays and veneers. The special segment will be dedicated to ceramic materials which are used in implantology and restoration of the nonvital teeth. This course also deals with aesthetic principles of the reconstruction of damaged teeth using ceramic restorations, colour phenomena and specificity in cementation procedures.	
Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.	
Recommended literature: 1..Rosenstiel S. Contemporary fixed prosthodontics. All ceramic restorations. Mosby, Elsevier, IV edition 2006,774-804. 2..Ahmad I. Protocols for predictable aesthetic restorations. Blackwell, 2006, 55-74.	

Total number of classes of active teaching and learning: 30				Professional practice/ independent learning: 15
Lectures: 15	Practicals:	Other modes of teaching : 15	Research paper:	

Teaching and learning methods Small groups, seminars, group discussions, discussions with the mentor, analysis of practical cases			
Assessment (maximum number of points: 100)			
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	5E28
Level of studies: Second	
Course: Zirconia in Prosthetic Dentistry	
Course Leader (Name, middle letter, surname): Miodrag Šćepanović, Aleksandar Todorović	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: V/ 10th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_5_28**

Objectives of the course:
Since the usage of Zirconia is expanding in dentistry, students will learn the advantages and disadvantages of this material.

Outcomes of the course:
After completing the course, students will be trained to properly indicate the use of Zirconia. They will also be trained to prepare a tooth for Zirconia restorations and will acquire knowledge of clinical and lab steps in analogue and digital workflow in producing Zirconia restorations.

Contents of the course:
Development, chemical and physical properties of Zirconia; Esthetic properties of Zirconia; Different concepts for producing fixed Zirconia restorations: layering, cut-back, monolithic constructions; Tooth preparation concepts for Zirconia restorations; Additional devices for teeth preparations- magnification; Zirconia restorations in implantology; Conventional impression for Zirconia restorations; Digital impression concept; Digital impression of prepared teeth; Digital impression for implant retained restorations; Cementing of Zirconia fixed restorations; Lab processes in producing Zirconia restorations; Types of Zirconia for dental practice and lab use; Devices for producing Zirconia restorations; Complications related to Zirconia.

Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.

Recommended literature:

Peláez J, Cogolludo PG, Serrano B, Lozano JF, Suárez MJ. A prospective evaluation of zirconia posterior fixed dental prostheses: three-year clinical results. Journal of Prosthetic Dentistry. 2012;107(6): 373-379. DOI: 10.1016/S0022-3913(12)60094-8

Agustín-Panadero R, Román-Rodríguez JL, Ferreiroa A, Solá-Ruíz MF, Fons-Font A. Zirconia in fixed prosthesis. A literature review. Journal of clinical and experimental dentistry. 2014;6(1): e66. DOI: 10.4317/jced.51304

Sailer I, Makarov NA, Thoma DS, Zwahlen M, Pjetursson BE. All-ceramic or metal-ceramic tooth-supported fixed dental prostheses (FDPs)? A systematic review of the survival and complication rates. Part I: Single crowns (SCs). Dental Materials. 2015;31(6): 603-623. DOI: 10.1016/j.dental.2015.02.011

Pjetursson BE, Sailer I, Malzarov NA, Zwahlen M, Thoma DS. All-ceramic or metal-ceramic tooth-supported fixed dental prostheses (FDPs)? A systematic review of the survival and complication rates. Part II: Multiple-unit FDPs. Dental Materials. 2015;31(6): 624-639. DOI: 10.1016/j.dental.2015.02.013

Schley JS, Heussen N, Reich S, Fischer J, Haselhuhn K, Wolfart S. Survival probability of zirconia-based fixed dental prostheses up to 5 yr: a systematic review of the literature. European Journal of Oral Sciences. 2010;118(5): 443-450. DOI: 10.1111/j.1600-0722.2010.00767.x

Kim H-K, Kim S-H, Lee J-B, Ha S-R. Effects of surface treatments on the translucency, opalescence, and surface texture of dental monolithic zirconia ceramics. Journal of Prosthetic Dentistry. 2016;115(6): 773-779. DOI: 10.1016/j.prosdent.2015.11.020

Stawarczyk B, Keul C, Eichberger M, Figge D, Edelhoff D, Lümkemann N. Three generations of zirconia: From veneered to monolithic. Part I. Quintessence International. 2017;48(5): 369-380. DOI: 10.3290/j.qi.a38057

Total number of classes of active teaching and learning:				Professional practice/ independent learning: 15
Lectures: 15	Practicals:	Other modes of teaching : 15	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Oral defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other activities	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	5E29
Level of studies: Second	
Course: Orofacial Pain in Patients in Dental Prosthetics	
Course Leader (Name, middle letter, surname): Igor S. Đorđević	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: V/ 10th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_5_29**
Objectives of the course: Introducing students to the basics of the onset, recognition, and control of pain in the orofacial region	
Outcomes of the course: After completing the course, the student should be able to: - assist in the dental practice during different stages of clinical examination of a patient with pain and recognize the type and origin of the present painful symptoms - use special questionnaires to evaluate and analyze painful conditions - demonstrate knowledge of the specifics of the therapeutic control of orofacial pain	
Contents of the course: Students will expand their knowledge of the concept of orofacial pain, epidemiology, anatomical and physiological considerations of the onset of orofacial pain; patient assessment of the pain: triage screening and detailed clinical examination, diagnostic systems for orofacial pain and differential diagnosis, a multidisciplinary approach in the control of orofacial pain and algometric techniques and methods in the assessment of pain intensity, the concept of TMD and muscle pain dysfunction: appearance of acute and chronic muscle pain; a multidisciplinary approach in the control of orofacial pain.	
Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.	
Recommended literature: 1. Okeson JP: Bell's orofacial pains, ed.5 Chicago, 1995, Quintessence Publishing (selected chapters) 2. de Leeuw R, Klasser G, eds. Orofacial Pain: Guidelines for Assessment, Diagnosis, and Management: American Academy of Orofacial Pain. Chicago, 2013, Quintessence Publishing (selected chapters)	

Total number of classes of active teaching and learning:				Professional practice/ independent learning: 15
Lectures: 15	Practicals:	Other modes of teaching : 15	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)

Pre-exam compulsory activities	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Oral defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study Programme: Integrated Studies of Dental Medicine	C32
Level of studies: Second	
Course: Maxillofacial Surgery	
Course Leader (Name, middle letter, surname): Zoran M. Jezdic	
Course status (compulsory/elective):	
ECTS: 9	**Year of the study: VI / 11th and 12th semesters**
Entry requirements (passed exams from the previous years):	**Course code: ST20MAKS**

Objectives of the course:
Teaching students to recognize diseases, types of soft and bone tissue injuries; to master diagnostic principles and surgical protocols in the maxillofacial region.

Outcomes of the course:
After completing the course, the student should be able to:
- Diagnose pathological conditions/infections, tumors and other diseases in the maxillofacial region
- Demonstrate knowledge of the protocol for the management of soft and bone injuries in the maxillofacial region, and the use of basic procedures for the application of temporary immobilization and haemostasis
- Demonstrate knowledge of the basic principles of application of medicamentous and surgical therapy for life-threatening infections in the maxillofacial region
- Demonstrate knowledge of postoperative patients care principles
- Demonstrate knowledge of dental patient care protocol after oncological treatment

Contents of the course:
Lectures – Oral and maxillofacial infections; Maxillofacial traumatology; Salivary glands diseases, tumors and cysts; Maxillary sinus diseases; Temporomandibular joint diseases; Benign and malignant tumors in the maxillofacial region; Cysts in maxillofacial region; Dentofacial deformities; Cleft lip and palate.

Practical teaching – Medical history, anamnesis and clinical examination; Ancillary diagnostic procedures and interpretation of findings; Principles of preparing the operator and assistant or work in sterile conditions and operational field preparation; Observation of surgical procedures accompanied with explanations provided by the operator; Diagnosis and indication for outpatient or inpatient surgery treatment; Temporary immobilization of jaw fractures; Principles of planning and designing obturators and postresection facial prostheses; Assisting during standard surgical interventions, and postoperative treatment of patients.

Recommended literature:
1. Vukadinovic M.et al. Maxillofacial Surgery: Practicum. Belgrade: School of Dental Medicine; 2018. (140 pag.)
2. Gavric M, Piscevic A, Sjerobabin I. Maxillofacial Surgery. Belgrade:Publishing house „Draganic“; 2001. (411 pag.)

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 60	Practicals: 60	Other modes of teaching:	Research paper:	

Teaching and learning methods:

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	3 points	Written Test	
Participation in practicals	27 points	Practical exam	20 points
Mid-term test (s)	8 / 2 x 4 / points	Oral exam	40 points
Seminars	2 points		
Other			

Table 5.2 Subject specification

Study Programme: Integrated Studies of Dental Medicine	C33
Level of studies: Second	
Course Otorhinolaryngology	
Course Leader (Name, middle letter, surname): Rade M Kosanovic, Snezana P. Sankovic-Babic	
Course status (compulsory/elective): Compulsory	
ECTS: 5	**Year of the study: VI / 11th semester**
Entry requirements (passed exams from the previous years):	**Course code: ST20ORLA**
Objectives of the course: Introducing the students of Dental Medicine to clinical assessment of the basic otorhinolaryngological pathology which is of importance for dental practice.	
Outcomes of the course: After completing the course, the students should be able to: - examine ENT patients - use all ENT instruments for ENT diagnosis and recognize the diagnostic procedures of audiometry, nasal endoscopy, indirect laryngoscopy (microlaryngoscopy) esophagoscopy and bronchoscopy, CT tomography - solve acute conditions in ENT region - recognize the principles of malignant diseases and treatment of laryngectomized patients and patients with tracheostomy - understand the basic clinical principles in diagnostics and treatment of acute and chronic inflammation of the ear, nose and throat mucosa - understand the basic clinical testing of patients with vestibular disorders and principles of the main otorhinolaryngological operations	
Contents of the course: Anatomy of the ear, nose , throat and larynx. Congenital disorders of the ENT regions. Injuries of the ENT regions. Urgent conditions in ENT -epistaxis and tracheostomy. Acute inflammation of the ear, nose and throat acute inflammation of the larynx. Chronic inflammation of the ear nose and throat. Tumors of the ear nose and throat, diagnosis and surgical therapy. Audiology introduction to the basic clinical conditions and disorders of the inner ear. Surgical therapy of the inner ear diseases. Basic principles of phoniatry. Diseases of the oesophagus. Diseases of the trachea and bronchi.	
Recommended literature:	

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals: 30	Other modes of teaching:	Research paper:	

Teaching and learning methods: Small groups of students, practical work at the clinical wards and at the outpatient clinic

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	3	Written Test	60
Participation in practicals	27	Practical exam	
Mid-term test (s)	10	Oral exam	
Seminars			
Other			

Table 5.2 Subject specification

Study Programme: Integrated Studies of Dental Medicine	C34
Level of studies: Second	
Course: Forensic Medicine	
Course Leader (Name, middle letter, surname): Dragana Ž. Puzović	
Course status (compulsory/elective): Compulsory	
ECTS: 5	**Year of the study: VI / 12th semester**
Entry requirements (passed exams from the previous years):/	**Course code: ST20SUME**
Objectives of the course: Introducing students to various types of violent health impairment, principles and medical criteria of the forensic medical expertise of body injuries, the importance of odontostomatological data in the process of identification of unknown living individuals and corpses. Introducing students to the obligations of a doctor of dentistry, keeping dental records and criminal acts related to the medical profession.	
Outcomes of the course: Mastering the diagnostics and principles of the forensic medical expertise of maxillofacial mechanical injuries based on established findings and /or dental records. Acquiring knowledge needed to identify unknown living and dead bodies based on odontostomatological data. Acquiring knowledge about legal duties during professional work of dentists and acquiring knowledge regarding criminal responsibility of dentists.	
Contents of the course: Violent harm to health, expertise diagnostics, expertise of injuries based on medical documentation, significance of odontostomatological data for identification, responsibilities of a doctor for criminal acts. Expertise on injuries of the maxillofacial region. Discussing expert reports on injuries.	
Recommended literature: Savić S, Veljković S, Đokić V, Alempijević Đ, Nikolić S. Forensic Medicine: textbook for medical students. Faculty of Medicine, University of Belgrade, 2002.	

Total number of classes of active teaching and learning:				Professional practice/ independent learning: /
Lectures: 30	Practicals: 15	Other modes of teaching: 1 colloquial exam	Research paper: /	

Teaching and learning methods:			
Assessment (maximum number of points: 100)			
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	**3**	Written Test	/
Participation in practicals	**27**	Practical exam	**10**
Mid-term test (s)	**10**	Oral exam	**50**
Seminars	/		
Other	/		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	C35
Level of studies: Second	
Course: Block: Restorative Dentistry	
Course Leader (Name, middle letter, surname): Miroslav M. Andrić	
Course status (compulsory/elective): Compulsory	
ECTS: 8	**Year of the study: VI / 11th and 12th semesters**
Entry requirements (passed exams from the previous years):	**Course code: ST20BLO1**

Objectives of the course:
To demonstrate an interdisciplinary approach to evaluation and treatment of patients regarding full mouth rehabilitation and to engage students in the preparation and execution of such treatments

Outcomes of the course:
Following the course completion students should be able to:
- Evaluate the need for complete dental treatment
- Prepare a treatment plan
- Evaluate local and systemic factors affecting the treatment plan
- Identify and analyze potential risks
- Execute procedures related to the established treatment plan in the fields of oral surgery, periodontology, restorative dentistry, endodontics and prosthodontics
- Identify and treat possible complications
- Establish and execute follow up examinations

Contents of the course:
Clinical and radiographic examination, establishing a treatment plan for a particular patient, periodontal treatment – conservative and surgical procedures in periodontology, extraction of teeth, surgical treatment of apical periodontitis, restorative procedures, direct and indirect restorations, endodontic procedures, fixed and removable dentures.

Recommended literature:
Hupp JR, Ellis E, Tucker MR.Contemporary Oral and Maxillofacial Surgery. St. Louis: Mosby; 2008.pp. 73-127, 153-213, 291-363, 383-397. (209 pages)
Bergenholtz G, Horsted-Bindslev P, Reit C. Textbook of Endodontology. Oxford: Wiley-Blackwell; 2009. (396 pages)
Lindhe J. Lang NP, Karing T. Clinical periodontology and implant dentistry, 2 Volume Set 6th Edition. New York: Wiley; 2017. pp. 216-351, 414-429, 519-808 (439 pages)
Rosenstiel S: Contemporary fixed prosthodontics, 4th.ed, St. Louis: Mosby; 2006. pp. 5-868 (863 pages)
Zarb G et al. Prosthodontic Treatment for Edentulous Patients: Complete Dentures and Implant-Supported Prostheses. St. Louis: Mosby; 2012. (464 pages)

Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 60	Practicals: 60	Other modes of teaching:	Research paper:	180

Teaching and learning methods:
The course encompasses five blocks: examination and treatment plan, periodontology, oral surgery, restorative dentistry and endodontics, prosthodontics. The first block is aimed at establishing treatment plans for individual patients and the remaining four clinical blocks are aimed at the execution of necessary procedures.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	10	Case presentation	60
Participation in practicals	30	Practical exam	
Mid-term test (s)		Oral exam	
Seminars			
Other			

Table 5.2 Subject specification

Study Programme: Integrated Studies of Dental Medicine	C36
Level of studies: Second	
Course: Block: Pedodontics	
Course Leader (Name, middle letter, surname): Vanja V. Petrović	
Course status (compulsory/elective): Compulsory	
ECTS: 7	**Year of the study: VI / 12th semester**
Entry requirements (passed exams from the previous years):	**Course code: ST20BLO2**

Objectives of the course: To enable the student to independently create a therapy plan for preventive measures, complete treatment and necessary orthodontic treatment thereafter

Outcomes of the course:

After successfully completing the course, the student should:

- Possess the knowledge and competence in health education of children and parents
- Possess the knowledge to create a complete therapy plan
- Possess the knowledge required for diagnosing risks for oral disease
- Possess the knowledge for the diagnostics and therapy of caries and complications of caries from early childhood through adolescence
- Possess the knowledge for diagnostics and therapy of periodontal diseases and soft oral tissues in children
- Possess the knowledge of emergency diagnosis and therapy
- Possess the knowledge for diagnosis of orthodontic irregularities
- Possess the knowledge of model and occlusion analysis
- Possess the knowledge of X- ray analysis
- Possess the knowledge of diagnostics and implementation of preventive and interceptive measures in orthodontics
- Possess the knowledge of treatment methods using removable orthodontic appliances
- Possess the knowledge of removable functional therapy
- Possess the knowledge of fixed appliance therapy
- Possess the knowledge related to handing over appliances and providing patients with carrying and storing instructions

Contents of the course: Application of preventive and prophylactic measures, therapy of caries and caries complications in deciduous and permanent teeth, urgent situations and first aid procedures for tooth injuries, orthodontic rehabilitation.

Recommended literature:

1. Koch G. et al. Pediatric Dentistry: a clinical approach. Third edition. Wiley Blackwell 2017. (pages 1-376)
2. John C. Benett, Richard P. McLaughlin. Fundamentals of Orthodontic Treatment Mechanics. Third edition. Le Grande Publishing 2014. (pages 1- 324).

Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals: 30	Other modes of teaching:	Research paper:	75

Teaching and learning methods:

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	40	Case report	60
Participation in practicals		Practical exam	
Mid-term test (s)		Oral exam	
Seminars			
Other			

Table 5.2 Subject specification

Study Programme: Integrated Studies of Dental Medicine	C37
Level of studies: Second	
Course: Implantology	
Course Leader (Name, middle letter, surname): Sasa M Jankovic	
Course status (compulsory/elective): Compulsory	
ECTS: 7	**Year of the study: VI / 11th semester**
Entry requirements (passed exams from the previous years):	**Course code: ST20IMPL**

Objectives of the course:
To train students to establish an individualized treatment plan based on anatomical, physiological, and systemic conditions, as well as based on future prosthetic reconstruction. To introduce students to the basics of dental implant systems, as well as to surgical and prosthetic treatment steps in implant treatment.

Outcomes of the course:
Following the completion of the course, the student should be able to:
-obtain the anamnesis, clinical examination and radiographic data analysis
-demonstrate knowledge of different implant types and materials used in dental implantology
-demonstrate knowledge of the indications and contraindications for dental implant treatment
-demonstrate knowledge of the basic clinical principles in implant dentistry
-take abutment level and implant level impressions and know the basic prosthetic steps for prosthesis fabrication
-demonstrate knowledge of surgical and prosthetic complications
-educate patients on oral hygiene maintenance

Contents of the course:
Introduction to oral implantology. Anatomical consideration for treatment planning. Indications and contraindications for implant placement. Risk factors and possible complications of implant treatment. Surgical techniques for implant placement. Prosthetic techniques and procedures for prosthesis fabrication. Soft and hard tissue augmentation procedures. Characteristics of materials for bone augmentation procedures. Dental implants' application in maxillofacial surgery.

Recommended literature:
Lindhe J, Lang NP and Karring T. Clinical Periodontology and Implant Dentistry. 5th edition. Wiley-Blackwell, 2009. Pages: 1053-1083, 1138-1144, 1146-1166, 1175-1203.
Misch C. Dental Implant Prosthetics.2nd Edition. Elsevier, 2014. Pages: 650-699, 724-752, 753-828.

Total number of classes of active teaching and learning:				Professional practice/ independent learning: 15
Lectures: 30	Practicals: 30	Other modes of teaching:	Research paper:	

Teaching and learning methods:

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	3	Written Test	60
Participation in practicals	27	Practical exam	
Mid-term test (s)	10	Oral exam	
Seminars			
Other			

Table 5.2 Subject specification

Study Programme: Integrated Studies of Dental Medicine	C38
Level of studies: Second	
Course: Dentofacial Orthopedics	
Course Leader (Name, middle letter, surname): Zorana Z. Stamenković	
Course status (compulsory/elective): Compulsory	
ECTS: 10	**Year of the study: VI / 11th and 12th semesters**
Entry requirements (passed exams from the previous years):	**Course code: ST20ORTO**

Objectives of the course:
Students are expected to learn the basics of etiology, prevention, diagnostics and treatment of all kinds of malocclusion

Outcomes of the course:
After completing the course, the students should be able to:
- Demonstrate knowledge of prenatal and postnatal growth and development of orofacial structures
- Demonstrate knowledge of the characteristics of the correct occlusion in deciduous, mixed and permanent dentition and determine the terms of normognatism, prognathism and retrognathism
- Demonstrate knowledge of the functions of orofacial structures
- Demonstrate knowledge of etiological factors which cause different malocclusion types
- Perform a clinical examination of patients, produce study casts and perform occlusal diagnostic procedures
- Analyze intraoral radiographs, orthopantomography and lateral cephalometrics (points, lines, angular and linear parameters)
- Prevent malocclusion in the prenatal and postnatal period
- Establish a diagnosis and plan of treatment for patients with irregularities in size and shape of the teeth and the dental arch
- Establish a diagnosis and plan of treatment for patients with bite irregularities in sagittal, transversal and vertical direction
- Demonstrate knowledge of biological principles of tooth movement and biomechanics
- Demonstrate knowledge of the indications for application, fabrication, and plan of treatment using active and functional removable appliances
- Demonstrate knowledge of the indications for application and phases of treatment using fixed appliances
- Retention

Contents of the course:
Growth and development of orofacial structures, main characteristics of deciduous, mixed and permanent dentition, orofacial functions and functional analysis, clinical examination in orthodontics, analysis of study casts, roentgen diagnostics in orthodontics, plan of treatment, prevention of different malocclusion, treatment in deciduous and mixed dentition by removable (active and functional) appliances, extraction in orthodontics, treatment with fixed appliances, retention and relapse.

Recommended literature
1. Proffit WR, Fields HW, Sarver DM. Contemporary Orthodontics. 4th ed. St. Louis: Mosby; 2007. 2-72; 130-234: 395-433; 617-635;
2. Ireland AJ, McDonald F. Diagnosis of the Orthodontic Patient, Oxford, 1998. 10-79;

Content of the professional practice: Professional practice encompasses supervised practical work with the aim of fostering students' practical skills and instilling techniques required for establishing a good rapport with patients.

Total number of classes of active teaching and learning:				Professional practice/ independent learning: 30
Lectures: 60	Practicals: 75	Other modes of teaching:	Research paper:	

Teaching and learning methods:

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	3	Written Test	
Participation in practicals	27	Practical exam	20
Mid-term test (s)	10	Oral exam	40
Seminars			
Other			

Table 5.2. Subject specification

Study program: **Integrated Studies of Dental Medicine**	C39
Level of studies: Second	
Course: Thesis Defence	
Course status (compulsory/elective): Compulsory	
ECTS: 3	**Year of the study: VI / 12th semester**
Entry requirements (passed exams from the previous years): The student is required to pass all courses within the study program Integrated Academic Studies of Dental Medicine	**Course code: ST20ZARA**
Objectives of the course: Strengthening the student's capacities in terms of: research methodology and writing scientific and professional papers; demonstrating systematized knowledge of the scientific disciplines of clinical dentistry, clinical medicine and basic sciences; using information systems to search national and international databases; gaining experience in presenting scientific research results.	
Outcomes of the course: After defending the thesis the student will be expected to: efficiently and effectively search national and international literature from the field; critically evaluate the validity and relevance of published research articles; assess clinical procedures performed in terms of their relevance to dentistry and justify their presentation to the members of the discipline community; collect data from practice; identify and define a clinical or research problem; systematize and present research findings in writing, and prepare a presentation of their research. In the process of conducting research and publishing the results obtained, the student will be expected to adhere to ethical principles and critically evaluate their own findings.	
General contents: The student will choose a topic independently and according to their own interests. Supervisors suggest a range of topics associated with clinical dentistry, clinical medicine or basic courses. The thesis will normally include a clinical case report underpinned by the relevant theoretical background of the dental problem addressed. The thesis may also include an experiment, analysis of medical records data or an overview of data obtained from current literature in the field. The thesis should contain: *title *introduction (an overview of the theoretical postulates related to the procedures performed in the scientific disciplines of clinical dentistry, clinical medicine or basic sciences; it is particularly important to consider current scientific and expert knowledge of the clinical subject matter) *a clinical case report, experimental report or research problem formulation. This section of the thesis contains a detailed description of the methods applied; suitable clinical photographs, radiographs or a statistical analysis may complement the textual content. *discussion – the case report involves an expert commentary based on previous scientific research, a critical assessment of clinical or research procedures and their possible outcomes, and highlights the significance of continuous evaluation of the achievements. *References – The Vancouver referencing style should be used; the references should be numbered consecutively according to their order of appearance in the text.	
Mode of delivery: The student must submit a print copy of their thesis. The thesis will be evaluated by a Thesis Committee comprised of three faculty members whose specific scientific field corresponds to the particular field of the thesis. The corresponding departments propose Thesis Committee members who are then appointed by the Vice Dean for Teaching and Learning at the beginning of each academic year.	
Grade range: from 5 to 10 (Maximum number of points: 100)	

Elective Block 6
Indirect Tooth Restorations
Treatment of Tooth Discoloration in the Esthetic Zone
Behavior Management in Pediatric Dentistry
Minimal Sedation in Pediatric Dentistry
Deontological Aspects of Dental Practice
Endoscopic Operations of the Nose and Paranasal Sinuses
Clinical Assessment of the Sinonasal Diseases
Treatment of Head and Neck Malignant Tumors
Dental Treatment of Oncological Patients
Postoperative Treatments in Maxillofacial Surgery
Patients Preparation for Surgical Correction of Dentofacial Deformity
Surgery of the Face
Endoscopic Surgery of the Maxillary Sinus
Navigation Implantology
Principles of Regenerative Therapy
3D Digital Technologies in Orthodontics
Fixed Orthodontics
Orthodontic Management of Impacted Teeth
Lingual Orthodontics
Multidisciplinary Therapy in Orthodontics
Orthodontic Mini-implants
Presurgical Orthodontic Treatment
The use of CBCT in Orthodontics and Dentofacial Orthopedics
Up-To-Date Radiology In Dentistry
Computerized Dentistry
Maxillofacial Prosthodontics

Table 5.2 Subject specification

<table>
<tr><td colspan="4">Study program: Integrated Studies of Dental Medicine</td><td>6E1</td></tr>
<tr><td colspan="5">Level of studies: Second</td></tr>
<tr><td colspan="5">Course: Indirect Tooth Restorations</td></tr>
<tr><td colspan="5">Course Leader (Name, middle letter, surname): Đurica, V. Grga</td></tr>
<tr><td colspan="5">Course status (compulsory/elective): Elective</td></tr>
<tr><td colspan="2">ECTS: 3</td><td colspan="3">Year of the study: VI / 11th semester</td></tr>
<tr><td colspan="2">Entry requirements (passed exams from the previous years):</td><td colspan="3">Course code: I_6_01</td></tr>
<tr><td colspan="5">Objectives of the course: Acquiring knowledge of the principles and methods of restorative treatment by indirect intracoronal and extracoronal restorations.</td></tr>
<tr><td colspan="5">Outcomes of the course:
After completing the course, the students should be able to:
- describe the types of indirect restorations
- determine the indications for tooth reconstruction using indirect restorations
- describe the cavity preparation methods for indirect restorations
- describe the steps for making and placing indirect restorations
- explain the techniques for the fabrication of indirect restorations
- describe the materials used for indirect restorations
- demonstrate knowledge of the principles of occlusion important for indirect restoration placement</td></tr>
<tr><td colspan="5">Contents of the course: Definitions of indirect tooth restorations; classification of indirect restorations; advantages and disadvantages of indirect restorations; cavity preparation for indirect restorations; methods for the fabrication of indirect restorations; CAD CAM method of fabrication of indirect tooth restoration; materials for indirect tooth restorations.</td></tr>
<tr><td colspan="5">Recommended literature:
1. Kidd EAM et al. Indirect cast metal, porcelain and composite intracoronal restorations. In: Kidd EAM(editor). Pickard´s manual of operative dentistry. Eighth edition. Oxford University Press, Oxford, 2003. Pages:177-187
2. Miles JP, Schulze KA, Castagna D. Selecting indirect restorative materials. In: Geissberger M (editor). Esthetic dentistry in clinical practice. First edition. Wiley Blackwell, Ames, USA, 2010. Pages:199-208.
3. Hakim F, Vallee J. Preparation design for indirect restorations in esthetic dentistry. In: Geissberger M (editor). Esthetic dentistry in clinical practice. First edition. Wiley Blackwell, Ames, USA, 2010. Pages:221-239
4. Schulze KA, Lubman RG. Luting agents for dental restorations. In: Geissberger M (editor). Esthetic dentistry in clinical practice. First edition. Wiley Blackwell, Ames, USA, 2010. Pages:275-288</td></tr>
<tr><td colspan="4">Total number of classes of active teaching and learning:</td><td rowspan="2">Professional practice/ independent learning:</td></tr>
<tr><td>Lectures:
30</td><td>Practicals:</td><td>Other modes of teaching :
30</td><td>Research paper:</td></tr>
<tr><td colspan="5">Teaching and learning methods: seminars, small groups, interactive discussions.</td></tr>
<tr><td colspan="5">Assessment (maximum number of points: 100)</td></tr>
<tr><td colspan="2">Pre-exam requirements</td><td>Total 40 points</td><td colspan="2">Final exam 60 points</td></tr>
<tr><td colspan="2">Participation in lectures</td><td></td><td>Written defense of a project on a chosen topic</td><td>60</td></tr>
<tr><td colspan="2">Participation in practicals</td><td></td><td>Practical exam</td><td></td></tr>
<tr><td colspan="2">Mid-term test(s)</td><td></td><td>Oral exam</td><td></td></tr>
<tr><td colspan="2">Seminars</td><td>20</td><td></td><td></td></tr>
<tr><td colspan="2">Other learning activities</td><td>20</td><td></td><td></td></tr>
</table>

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	6E2
Level of studies: Second	
Course: Treatment of Tooth Discoloration in the Esthetic Zone	
Course Leader (Name, middle letter, surname): Tatjana V. Savić-Stanković	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: VI / 11th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_6_02**

Objectives of the course:
Gaining knowledge of the optical characteristics of hard dental tissues, types and causes of dental discoloration, clinical significance of dental discoloration, mechanism of its formation, whitening mechanism of hard dental tissues, agents used for this purpose, clinical methods of vital and avital teeth whitening, side effects of the therapy, causes of hypersensitivity during therapy, contraindications and post-treatment procedures for remineralization of enamel.

Outcomes of the course:
After completing the course, the student should be able to:
- describe the characteristics of the optical properties of hard dental tissues
- describe the main factors causing vital and avital teeth discolorations
- make a diagnosis of tooth discoloration
- describe the characteristics of tooth whitening agents
- explain the characteristics of different clinical teeth whitening methods
- describe all the procedures prior to avital teeth whitening process
- make a treatment plan for tooth discoloration
- explain the therapeutic procedure and take care of possible side effects of the procedure
- make a plan for post-treatment procedures that include remineralisation of dental tissues

Content of the course:
Optical properties of hard dental tissues; definition, causes and classification of tooth discoloration; mechanism of tooth discoloration; agents in the treatment of dental discoloration and the mechanism of their action; classification of clinical teeth whitening methods; the process of preparing vital teeth for a whitening therapy; the process of preparing avital teeth for a whitening therapy; methods for vital teeth whitening; methods for whitening avital teeth; contraindications in bleaching therapy; side effects of the therapy; definition and factors of tooth hypersensitivity during therapy; revitalization; post-therapeutic procedures for hard dental tissues.

Recommended literature:
1. Goldstein, Ronald E., and David A. Garber. Complete dental bleaching. Quintessence Publishing (IL), 1995; str.1-159
2. Frank Setzer. Bleaching procedures. U: Hargreaves, Kenneth M., and Louis H. Berman. Cohen's pathways of the pulp expert consult. Elsevier Health Sciences, 2016. e96-e113

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	6E3
Level of studies: Second	
Course: Behavior Management in Pediatric Dentistry	
Course Leader (Name, middle letter, surname): Ivana S Radovic	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: VI / 11th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_6_03**

Objectives of the course:
Acquiring knowledge of behavioral techniques used in pediatric dentistry.

Outcomes of the course: After taking the course and passing the exam, the student should be able to:
- Explain the goals of behavioral approach in pediatric dentistry
- Differentiate between universally accepted and controversial behavioral methods
- Describe the types of universally accepted behavioral techniques
- Recognize the need to apply a particular behavioral technique
- Combine different behavioral techniques in dental work with children
- Develop a plan for adapting the patient to dental interventions using behavioral techniques
- Explain the characteristics of controversial behavioral techniques

Contents of the course:
Definition of behavioral management; basic goals of behavioral management; prerequisites for successful implementation of behavioral techniques; the scientific basis of behavioral management; classification of behavioral techniques in dentistry; universally accepted behavioral techniques: "tell-show-do", desensitization, positive reinforcement, modelling, distraction, voice control; controversial behavioral techniques: presence - absence of parents, protective stabilization; factors that influence the choice of behavioral techniques in pediatric dentistry.

Recommended literature:
- Wright GZ, Kupietzky A. Non-Pharmacologic Approaches in Behavior Management. Chapter in textbook: Behavior management in dentistry for children. Editors: Wright GZ, Kupietzky A. Wiley Blackwell 2014 (page 63-93)
- American Academy of Pediatric Dentistry: AAPD Guideline on Behavior Guidance for the Pediatric Dental Patient 2015: https://www.aapd.org/globalassets/media/policies_guidelines/bp_behavguide.pdf (page 254-267)
- American Academy of Pediatric Dentistry: Protective stabilization for Pediatric Dental Patients: https://www.aapd.org/globalassets/media/policies_guidelines/bp_protective.pdf (page 268-273)
- Anthonappa, Robert P et al. "Non‐pharmacological interventions for managing dental anxiety in children." The Cochrane Database of Systematic Reviews vol. 2017,6 CD012676. 5 Jun. 2017, doi:10.1002/14651858.CD012676 (page 1-15)

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20	Seminar	
Other (activity during classes)	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	6E4
Level of studies: Second	
Course: Minimal Sedation in Pediatric Dentistry	
Course Leader (Name, middle letter, surname): Ivana S. Radovic	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: VI / 11th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_6_04**
Objectives of the course: To acquire knowledge of the use of minimal sedation in pediatric dentistry.	
Outcomes of the course: After completing the course and passing the exam, the student should be able to: - Explain the goals and importance of minimal sedation in pediatric dentistry - Distinguish minimal sedation from deeper levels of sedation - Comprehend the characteristics of different levels of sedation - Recognize the need for the use of minimal sedation in pediatric dentistry - Describe ways in which minimal sedation can be applied in pediatric dentistry - Comprehend the characteristics of minimal peroral sedation - Comprehend medications that can be used to achieve minimal peroral sedation in pediatric dentistry - Comprehend how to work in minimal peroral sedation in pediatric dentistry - Comprehend the characteristics of minimal nitrous oxide / oxygen inhalation sedation - Comprehend the application method for minimal nitrous oxide / oxygen inhalation sedation - Make a plan for dental interventions using minimal sedation techniques	
Contents of the course: Definition of sedation; sedation levels: minimal sedation, moderate sedation, deep sedation, general anesthesia; characteristics of different levels of sedation; "ASA" categorization of patients; basic goals and importance of applying minimal sedation in pediatric dentistry; preconditions for successful minimal sedation; selection of patients for minimal sedation; factors that influence the decision to choose a specific minimal sedation technique in pediatric dentistry; the importance of applying minimal sedation with the mandatory use of behavioral techniques; minimal peroral sedation - characteristics, medications and clinical technique; minimal nitrous oxide / oxygen inhalation sedation - characteristics and clinical technique.	
Recommended literature: - Wilson S. Sedation for the pediatric patient. Chapter in textbook: Behavior management in dentistry for children. Editors: Wright GZ, Kupietzky A. Wiley Blackwell 2014 (page 131-145) - Emmanouil D, Kupietzky A. Nitrous oxide / oxygen inhalation sedation in children. Chapter in textbook: Behavior management in dentistry for children. Editors: Wright GZ, Kupietzky A. Wiley Blackwell 2014 (page 145-159) - Wilson S. Minimal and moderate sedation agents. Chapter in textbook: Behavior management in dentistry for children. Editors: Wright GZ, Kupietzky A. Wiley Blackwell 2014 (page 159-177)	

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	
Teaching and learning methods				

Assessment (maximum number of points: 100)			
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other (activity during classes)	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine				6E5
Level of studies: Second				
Course: Deontological Aspects of Dental Practice				
Course Leader (Name, middle letter, surname): Dragana Ž. Puzović				
Course status (compulsory/elective): Elective				
ECTS: 3			**Year of the study: VI / 12th semester**	
Entry requirements (passed exams from the previous years):/			**Course code: I_6_05**	
Objectives of the course: Expanding students' knowledge of the patient's rights and obligations, the professional duties of doctors, and the criminal acts related to the medical profession. Special attention will be paid to the medical malpractice as a criminal act, while emphasizing the importance of adequately composed medical documentation for conducting forensic medical expertise which is performed for the court in case of suspicion that this criminal act has been committed.				
Outcomes of the course: Students should acquire knowledge of the rights and obligations of patients, the legal framework of medical practice, especially the elements of the criminal act as a medical malpractice. They are fully acquainted with the method of composing adequate medical documentation and its significance in criminal acts, especially when it comes to forensic expertise of the medical negligence.				
Contents of the course: The obligations and rights of patients and professional duties of doctors. Criminal acts in medical practice, emphasis on the medical negligence. The role and significance of the adequately composed medical documentation in forensic medical expertise.				
Recommended literature: Savić S, Veljković S, Đokić V, Alempijević Đ, Nikolić S. Forensic medicine textbook for medical students. School of Medicine University of Belgrade, 2002.				
Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: **30**	Practicals:	Other modes of teaching : **30**	Research paper:	
Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.				
Assessment (maximum number of points: 100)				
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**		
Seminars	**20**	Written defense of a project on a chosen topic	**60**	
Other activities	**20**			

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	6E6
Level of studies: Second	
Course: Endoscopic Operations of the Nose and Paranasal Sinuses	
Course Leader (Name, middle letter, surname): Rade Kosanović	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: VI / 11th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_6_06**
Objectives of the course: Gaining knowledge of the latest diagnostic and therapeutic endoscopic procedures in the nose and paranasal cavities. Introducing students to the pathology of paranasal cavities and presentation of treatment options using endoscopic techniques. Acquainting students with possible complications of endoscopic surgery and methods for treating them.	
Outcomes of the course: After completing the course and passing the exam, the student should be able to: - understand the options for treating the pathologies of the nose and paranasal cavities in terms of endoscopic techniques, - demonstrate knowledge of the principles of performing endoscopic procedures, - demonstrate knowledge of the role of endoscopic methods in the treatment of chronic rhinosinusitis, nasal polyposis and oroantral fistulas, - recognize the patient's condition that requires treatment by using endoscopic techniques, - adopt the concept of endoscopic surgery in the treatment of paranasal cavity diseases.	
Contents of the course: History and basic diagnostic procedures, ENT examination, nose endoscopy. Analysis of computed tomography imaging necessary for performing endoscopic procedures. Principles of method selection in the treatment of sinus pathology. Indication analysis and presentation of endoscopic operations of the nose and paranasal cavities. Presentation of Contemporary Navigation Endoscopic Sinus Surgery. Presentation of complications of endoscopic surgical interventions and treatment principles.	
Recommended literature: Rhinology : diseases of the nose, sinuses, and skull base / edited by David W. Kennedy, Peter H. Hwang. — 1st ed. Thieme Medical Publishers, Inc New York 2014 (271-335, 370-380, 425-456 str).	

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)			
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	3	Written defense of a project on a chosen topic	60
Participation in practicals	27	Practical exam	
Mid-term test(s)	10	Oral exam	
Seminars			
Other			

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	6E7
Level of studies: Second	
Course Clinical Assessment of the Sinonasal Diseases	
Course Leader (Name, middle letter, surname): Snezana P. Sankovic-Babic	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: VI / 11th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_6_07**
Objectives of the course: Gaining knowledge of the importance of clinical anatomy and physiology of the nose and paranasal sinuses; latest data about pathophysiology of chronic inflammation of the sinonasal mucosa; clinical features of chronic rhinosinusitis of the allergic and non allergic origin; the latest diagnostic procedures- nasal endoscopy, allergotests, the use of classical CT and cone beam CT in diagnosis of sinonasal diseases; preoperative protocols and selection of the patients for functional endoscopic sinonasal surgery procedures; and the basic clinical strategies in the conservative therapy of chronic rhinosinusitis.	
Outcomes of the course: After having completing the course, students should be able to: - describe the basic anatomical relations in sinonasal anatomy - recognize the basic pathophysiological mechanisms in the chronic allergic and nonallergic inflammation of the sinonasal mucosa - understand the basic procedures for allergy tests in the diagnosis of allergic rhinitis - understand the description of the pathological findings in CT and CBCT of the nose and paranasal sinuses - recognize clinical indications and diagnostic procedures for the selection of the patients for surgical therapy by functional endoscopic surgery FESS	
Contents of the course: Medical records and basic diagnostic procedures: ENT examination, endoscopy of the nose. Analysis of the anatomical landmarks in the CT findings of the nose and paranasal sinuses. The description of the pathological findings in the CT and CBCT of the nose and paranasal sinuses. Reproduction of allergy test findings. Preoperative assessment of patients for nasal endoscopy and endoscopy surgery of the nose and paranasal sinuses. The principles of the conservative treatment of chronic rhinosinusitis.	
Recommended literature: Rhinology : diseases of the nose, sinuses, and skull base / edited by David W. Kennedy, Peter H. Hwang. — 1st ed. 2014, pp. 21 -209, ISBN 978-1-60406-060-7	

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods: Small groups, practical work at clinical wards and the outpatient clinic			
Assessment (maximum number of points: 100)			
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	3	Written defense of a project on a chosen topic	60
Participation in practicals	27	Practical exam	
Mid-term test(s)	10	Oral exam	
Seminars			
Other			

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	6E8
Level of studies: Second	
Course: Treatment of Head and Neck Malignant Tumors	
Course Leader (Name, middle letter, surname): Petrovic B. Milan	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: VI / 12th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_6_08**

Objectives of the course:
Acquiring knowledge of the etiology, symptomatology, diagnosis and treatment of head and neck malignant tumors.

Outcomes of the course:
Upon completing the course and passing the exam, students should be able to:
- Recognize the risk factors for the development of head and neck malignant tumors
- Recognize the symptoms that indicate the presence of an intraoral malignant tumor
- Ascertain which diagnostic measures can be used to confirm the presence of a malignant tumor in the maxillofacial region
- Refer the patient to the medical specialist for adequate treatment due to a suspicion of cancer
- Independently propose the plan for dental preoperative preparation of oncology patients
- Explain to a patient the order of steps taken in the treatment of head and neck malignant tumors
- Perform postoperative dental protection in oncology patients

Content of the course:
Definition of malignant tumors. Types of head and neck malignant tumors. Symptomatology of certain malignant tumors in the maxillofacial region. Diagnostic methods used for head and neck oncology patients. Preoperative preparation of oncology patients – dental and general medical. Types of treatment of malignant tumors. Postoperative care. Postoperative dental treatment. Intraoperative and postoperative complications in oncology patients in maxillofacial surgery.

Recommended literature:
Jatin. P Shah.Head and neck surgery and oncology, Philadelphia: Elsevier – Mosby; 2012. (102-150)

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods:
Small groups, seminars, integrative discussions, case study

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	6E9
Level of studies: Second	
Course: Dental Treatment of Oncological Patients	
Course Leader (Name, middle letter, surname): Boban Z. Anicic	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: VI / 12th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_6_09**

Objectives of the course:
Gaining knowledge of the dental treatment of oncological patients during and after radiotherapy and chemotherapy.

Outcomes of the course:
After completing the lectures and passing the exam, the student should be able to:
- Present the specifics of oncological therapy
- Perform a clinical examination and establish a diagnosis based on the consequent signs of a disease indicating dental treatment
- Recognize the risks in the dental practice resulting from the effects of oncological therapy
- Make a plan for dental therapy for these patients while eliminating the risks
- Describe the necessary therapeutic procedures
- Predict and prevent complications from occurring in a timely manner.

Contents of the course:
Therapeutic procedures in the treatment of malignant diseases, surgical treatment, radio and chemotherapy, consequences of oncological treatment, specifics of dental treatment of these patients, risk assessment, planning of therapeutic procedures, therapeutic treatment, the most common complications after therapy.

Recommended literature:
1. Peter Brennan, Henning Schliephake, G.E. Ghali, Luke Cascarini. Maxillofacial Surgery, 3rd Edition ISBN : 9780702060564. ELSEVIER 2016., 317-354.
2.Peter Nixon, Chris Nutting, James Owens, Vinidh Paleri, Justin Roe, Sam Rollings, Audrey Scott Macmillan, Bella Talwar. Predicting and Managing Oral and Dental Complications of Surgical and Non-Surgical Treatment for Head and Neck Cancer. A Clinical Guideline November 2016. 4-22.
3. Begonya Chaveli López, Carmen Gavaldá Esteve, Mª Gracia Sarrión Pérez. Dental treatment considerations in the chemotherapy patient. J Clin Exp Dent. 2011;3(1):e31-42. Dental treatment in chemotherapy. Journal section: Oral Medicine and Pathology doi:10.4317/jced.3.e31
Publication Types: Review Valencia University Dental School, Valencia, Spain
4. Firoozeh Samim, Joel B. Epstein, Zachary S. Zumsteg, Allen S. Ho & Andrei Barasch. Oral and dental health in head and neck cancer survivors. Cancers of the Head & Neck volume 1, Article number: 14 (2016) Cancers of the Head & Neck ISSN: 2059-7347.

Total number of classes of active teaching and learning: 30				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods: Small groups, seminars, interactive discussions, presentations and case analysis.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	6E10
Level of studies: Second	
Course: Postoperative Treatments in Maxillofacial Surgery	
Course Leader (Name, middle letter, surname): Boban Z. Anicic	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: VI / 11th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_6_10**

Objectives of the course:
Gaining knowledge of the diseases of the maxillofacial region requiring postoperative treatment by maxillofacial surgeons and dentists after initial surgical treatment; introducing students to treatment modalities.

Outcomes of the course:
After completing the course, students should be able to:
- Describe the postoperative treatments to be performed in patients after surgical treatment
- Make a plan for postoperative therapy
- Implement some of the simpler therapeutic procedures in the dental office
- Predict and prevent the onset of complications in the postoperative period

Contents of the course:
Therapeutic procedures in treating, postoperative treatment in maxillofacial surgery, the role of the dentist in postoperative period, dental treatment after treating (traumatology, orthognathic surgery, cysts, tumors, cleft...), specificity of dental treatment of these patients, risk assessment, planning therapeutic procedures, therapeutic treatment, the most common complications after therapy.

Recommended literature:
1. Peter Brennan, Henning Schliephake, G.E. Ghali, Luke Cascarini. Maxillofacial Surgery, 3rd Edition ISBN : 9780702060564. ELSEVIER 2016. 38-40, 51-52, 1171-1174, 1276-1278, 1374-1375,
2.James R. Hupp, Myron R. Tucker, Edward Ellis.Contemporary Oral and Maxillofacial Surgery, 7th Edition**.** ISBN 9780323552219, Elsevier Science2018. 583-603.

Total number of classes of active teaching and learning: 30				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods: Small groups, seminars, interactive discussions, presentation and case analysis.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	6E11
Level of studies: Second	
Course: Patients Preparation for Surgical Correction of Dentofacial Deformity	
Course Leader (Name, middle letter, surname): Zoran M. Jezdic	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: VI / 12th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_6_11**

Objectives of the course:
Gaining knowledge of the principles and procedures of preparing patients who require corrective jaw surgery

Outcomes of the course:
After completing the course and passing the exam, the students should be able to:
- recognize and distinguish dentofacial deformity
- know basic principles and protocols of preparation for corrective jaw surgery
- be familiar with the procedures of analysing and planning a surgical correction

Contents of the course:
Definition and contemporary classification of skeletal jaw deformity; The task of the dentist in preparation of patients with dentofacial deformity for surgical correction; Consiliary and multidisciplinary approach to the correction of dentofacial deformity; Analyses used in planning corrective jaw surgery; Surgery of study modes and use of intersplint and definitive splint; Surgical methods used in corrections; Modern 3D planning of surgical correction.

Recommended literature:
1. Peter Brennan, Henning Schliephake, G.E. Ghali, Luke Cascarini. Maxillofacial Surgery, 3rd Edition ISBN : 9780702060564. ELSEVIER 2016. 1048-1153

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	6E12
Level of studies: Second	
Course: Esthetic Surgery of the Face	
Course Leader (Name, middle letter, surname): Vitomir S. Konstantinović	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: VI / 12th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_6_12**
Objectives of the course: To introduce the course participants (students) to the part of maxillofacial surgery dealing with facial esthetics	
Outcomes of the course: After completing the course and passing the exam, the student should: - Know the proportions and dimensions of the ideal face - Know the possibilities of correction of craniofacial deformities - Know the esthetic surgical procedures performed on the face.	
Contents of the course: Facial anatomy, histology of the skin of the face, correction of skeletal deformities in order to achieve facial harmony, surgical correction of the auricula, nose, and complications associated with the correction of craniofacial deformities.	
Recommended literature: Janis, J. E. (Ed.). (2018). *Essentials of Aesthetic Surgery*. Thieme.372-402, 429-462, 528-551, 565-620, 645-711.	

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	6E13
Level of studies: Second	
Course: Endoscopic Surgery of the Maxillary Sinus	
Course Leader (Name, middle letter, surname): Radojica Drazic	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: VI / 11th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_6_13**

Objectives of the course:
The goal of the course Endoscopic surgery of Maxillary Sinus is to provide the students with the knowledge related to the possibilities of less invasive surgical procedures of the maxillary sinus

Outcomes of the course:
After completing the course, the student should :

- Demonstrate knowledge of the indications and contraindications for endoscopic surgery of the maxillary sinus
- Be fully introduced to the anatomy of the medial wall of the maxillary sinus-lateral wall of the nose
- Master the contemporary approach in treatment of inflammatory diseases of the maxillary sinus and nose
- Be introduced to a surgical technique of endoscopic surgery of the maxillary sinus
- Recognize intraoperative and postoperative complications of this surgical method
- Critically decide which pathology of maxillary sinus should be treated by endoscopic vs classic surgical approach.

Contents of the course:
Indications and contraindications for endoscopy, anatomy, treatment of inflammatory diseases of the maxillary sinus, instrumentarium, surgical technique, and its complications

Recommended literature:
Andreas Leunig, with the assistance of: C. S. Betz, P. Janda,, H. Ledderose, F. Sommer, Endoscopic Surgery of the Lateral Nasal Wall, Paranasal Sinuses, and Anterior Skull Base – Principles and Clinical Examples . 1st edition 2007 © 2015 GmbHP.O. Box, 78503 Tuttlingen, Germany pages: 1- 74

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods: The practicals are designed to follow the theoretical lessons. After the introductory lectures the students actively participate in diagnosing diseases of the maxillary sinus and plan the therapy while consulting contemporary literature. The students also actively participate in performing live endoscopic surgery.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals			
Mid-term test(s)			
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	6E14
Level of studies: Second	
Course: Navigation Implantology	
Course Leader (Name, middle letter, surname): Aleksa Marković	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: VI /11th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_6_14**

Objectives of the course:
Gaining knowledge of innovative principles and standards in the field of navigation implantology, based on CBCT imaging analysis and digital access, diagnostics, indications, therapy plan, surgical techniques and access depending on the planned implant placement region, and the anatomical parameters necessary for their implementation in order to successfully apply implant therapy.

Outcomes of the course:
After completing the course and passing the exam, the student should be able to:
- Demonstrate knowledge of the methods for diagnosing and analysing CBCT images
- Set an indication for future implant therapy
- Demonstrate knowledge of the basic principles of implant therapy
- Make a therapy plan, suggest work techniques and instruments that will be used during the surgical intervention
- Demonstrate knowledge of the possible complications of surgery and how to treat it

Contents of the course:
Diagnostic procedures and analysis of CBCT images; upper and lower jaw anatomy; indications and contraindications for the application of navigation implantology; basic principles of implant therapy; implant techniques and instruments for performing implant surgery; complications during and after the implant procedure.

Recommended literature:
1. Milan Jurisic, Dragoslav Stamenkovic, Aleksa Markovic, Aleksandar Todorovic, Bozidar Dimitrijevic, Vojislav Lekovic, Vitomir Konstantinovic, Miroslav Vukadinovic: “Oral Implantology” 2008. P.248
2. James R Hupp, Edward Ellis III, Myron R Tucker: "Contemporary Oral and Maxillofacial Surgery", Mosby, Inc. "Contemporary Implant Dentistry" Pages 253-288

Total number of classes of active teaching and learning: 30				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching :30	Research paper:	

Teaching and learning methods
Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	6E15
Level of studies: Second	
Course: Principles of Regenerative Therapy	
Course Leader (Name, middle letter, surname): Bojan D. Janjić	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: VI / 11th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_6_15**

Objectives of the course:
Acquiring knowledge of the diagnostics, indications, treatment plan, various surgical techniques and approaches depending on the region of the existing bone defect, as well as the anatomical parameters necessary for their implementation, in order to successfully apply the chosen method of regenerative therapy.

Outcomes of the course:
After completing the course and passing the exam, the student should be able to:
- Demonstrate knowledge of the methods of diagnosing bone defects
- Set an indication for future surgery to treat bone defects
- Demonstrate knowledge of the basic principles of regenerative therapy
- Suggest a therapy plan, technique, material and instruments to be used during the surgical intervention
- Demonstrate knowledge of the anatomical details in the upper and lower jaws that are important for performing surgery
- Demonstrate knowledge of the possible complications of surgery and how to treat it

Contents of the course:
Definition, types and classification of bone defects; upper and lower jaw anatomy; indications and contraindications for the application of surgical procedures for bone defect repair; basic principles of regenerative therapy; work technique and regenerative material; complications while performing different methods of regenerative procedures.

Recommended literature:
1. Milan Jurisic, Dragoslav Stamenkovic, Aleksa Markovic, Aleksandar Todorovic, Bozidar Dimitrijevic, Vojislav Lekovic, Vitomir Konstantinovic, Miroslav Vukadinovic: “Oral Implantology” 2008. Pages 248
2. James R Hupp, Edward Ellis III, Myron R Tucker: "Contemporary Oral and Maxillofacial Surgery", Mosby, Inc. "Preprosthetic Surgery" page 213-252

Total number of classes of active teaching and learning: 30				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods
Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2 Subject specification

<table>
<tr><td colspan="3">Study program: Integrated Studies of Dental Medicine</td><td colspan="3">6E16</td></tr>
<tr><td colspan="6">Level of studies: Second</td></tr>
<tr><td colspan="6">Course: 3D Digital Technologies in Orthodontics</td></tr>
<tr><td colspan="6">Course Leader (Name, middle letter, surname): Branislav R. Glišić</td></tr>
<tr><td colspan="6">Course status (compulsory/elective): Elective</td></tr>
<tr><td colspan="3">ECTS: 3</td><td colspan="3">Year of the study: VI / 12th semester</td></tr>
<tr><td colspan="3">Entry requirements (passed exams from the previous years):</td><td colspan="3">Course code: I_6_16</td></tr>
<tr><td colspan="6">Objectives of the course: Introduction to 3D technologies used in orthodontics for orthodontic analyses. 3D study models construction. Technology of designing simple orthodontic appliances and 3D printing.</td></tr>
<tr><td colspan="6">Outcomes of the course:
After completing the course, students should be able to:
- Demonstrate knowledge of individual intraoral scanning
- Demonstrate knowledge of 3D model construction using software
- Plan simple orthodontic appliances using software
- Demonstrate knowledge of 3D printing of simple orthodontic appliances with the help of an orthodontic technician</td></tr>
<tr><td colspan="6">Contents of the course:
Intraoral scanning
3D model construction
Planning simple orthodontic appliances
3D printing of simple orthodontic appliances</td></tr>
<tr><td colspan="6">Recommended literature:
The 3D Printing Handbook: Technologies, design and applications Hardcover – November 14, 2017
by Ben Redwood, Filemon Schöffer, Brian Garret i 3D Printing Projects Paperback – October 3, 2017
by DK</td></tr>
<tr><td colspan="4">Total number of classes of active teaching and learning:</td><td colspan="2" rowspan="2">Professional practice/ independent learning:</td></tr>
<tr><td>Lectures:
30</td><td>Practicals:</td><td>Other modes of teaching :
30</td><td>Research paper:</td></tr>
<tr><td colspan="6">Teaching and learning methods: Work in small groups, appliance planning using software, and learning how to 3D print the appliance</td></tr>
<tr><td colspan="6">Assessment (maximum number of points: 100)</td></tr>
<tr><td colspan="2">Pre-exam requirements</td><td colspan="2">Total 40 points</td><td colspan="2">Final exam 60 points</td></tr>
<tr><td colspan="2">Participation in lectures</td><td colspan="2"></td><td>Written defense of a project on a chosen topic</td><td>60</td></tr>
<tr><td colspan="2">Participation in practicals</td><td colspan="2">20</td><td>Practical exam</td><td></td></tr>
<tr><td colspan="2">Mid-term test(s)</td><td colspan="2"></td><td>Oral exam</td><td></td></tr>
<tr><td colspan="2">Seminars</td><td colspan="2"></td><td></td><td></td></tr>
<tr><td colspan="2">Other</td><td colspan="2">20</td><td></td><td></td></tr>
</table>

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	6E17
Level of studies: Second	
Course: Fixed Orthodontics	
Course Leader (Name, middle letter, surname): Ljiljana S. Stojanović	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: VI / 12th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_6_17**
Objectives of the course: To introduce students to comprehensive diagnosis, treatment planning, and using effective fixed appliances used in orthodontic treatment. To gain a clear understanding of the fundamental biomechanical principles of the orthodontic force that allow designing fixed appliances and systems.	
Outcomes of the course The student will be competent to set a diagnosis and understand the fundamentals of biomechanics of orthodontic appliances.	
Contents of the course Evolution of fixed orthodontic technology and the properties of orthodontic materials; essential mechanical principles behind a successful orthodontic treatment that involves fixed appliances; a concise approach to recognizing and formulating an orthodontic problem, the diagnosis and treatment goals and objectives of dentofacial malocclusions encountered in clinical practice; the overall general and specific clinical findings, which serve as the foundation of treatment decisions, recommending treatment approaches to specific problems; key steps to achieving pleasant facial and dental aesthetics, normal dental health, and the stability of the dentition and the jaws.	
Recommended literature: Color Atlas of Dental Medicine Orthodontic Diagnosis, Thomas Rakosi, Irmtrud Jonas, Thomas M. Graber	

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods			
Assessment (maximum number of points: 100)			
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals	20		
Mid-term test(s)			
Seminars			
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	6E18
Level of studies: Second	
Course: Orthodontic Management of Impacted Teeth	
Course Leader (Name, middle letter, surname): Evgenija S. Markovic	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: VI /12th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_6_18**
Objectives of the course: Acquiring knowledge of the basic guidelines for diagnostic procedures and treatment principles in patients with impacted teeth	
Outcomes of the course: After completing the course, the students should be able to demonstrate the knowledge of: - etiology and prevalence of impacted teeth, - diagnosis of impaction; indications and contraindications for application of diagnostic procedures - radiographic examination - basic treatment options, modalities and techniques - basic principles of surgical modalities in the management of impacted teeth - prognosis and complications of orthodontic treatment	
Contents of the course: Etiology, prevalence of impacted teeth. Clinical and radiographic examination, indications for various radiographic methods, including CBCT; classification and location of impacted teeth, treatment methods, prognosis, complications	
Recommended literature: Proffit RW, Fields HW, Sarver DM: Contemporary orthodontics. Third edition. Mosby, St Louis. US. 2000. (pages 77-91; 538-542; 196-239) Korbendau JM / Patti A: Clinical Success in Surgical and Orthodontic Treatment of Impacted Teeth. Quintessence Publishing, France, 2006. (pages 1-162)	

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods: Small groups, interactive discussions, case reports and analysis. Practical and clinical engagement, literature review and presentations, open discussion. Clinical, radiographic examination and application of different diagnostic methods. Treatment plan. Seminars. Clinical work with patients.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals	30		
Mid-term test(s)			
Seminars	5		
Other	5		

Table 5.2 Subject specification

<table>
<tr><td colspan="3">Study program: Integrated Studies of Dental Medicine</td><td colspan="3">6E19</td></tr>
<tr><td colspan="6">Level of studies: Second</td></tr>
<tr><td colspan="6">Course: Lingual Orthodontics</td></tr>
<tr><td colspan="6">Course Leader (Name, middle letter, surname): Zorana Z. Stamenković</td></tr>
<tr><td colspan="6">Course status (compulsory/elective): Elective</td></tr>
<tr><td colspan="3">ECTS: 3</td><td colspan="3">Year of the study: VI /12th semester</td></tr>
<tr><td colspan="3">Entry requirements (passed exams from the previous years):</td><td colspan="3">Course code: I_6_19</td></tr>
<tr><td colspan="6">Objectives of the course: Mastering the basics of lingual orthodontics, indications and contraindications for treatment with lingual fixed appliances, mechanism of application and action and treatment effects.</td></tr>
<tr><td colspan="6">Outcomes of the course:
After completing the course, the students should be able to:
- differentiate between standard vestibular and lingual techniques of treatment by fixed appliances,
- demonstrate knowledge of the basics and mechanics of lingual fixed appliances,
- define the differences between 2D and 3D lingual brackets.</td></tr>
<tr><td colspan="6">Contents of the course:
Defining basic characteristics of lingual orthodontics, properties of 2D and 3D lingual brackets, instruments required for lingual positioning of brackets, incognito treatment method, stages of treatment, case reports of patients treated with lingual fixed appliances.</td></tr>
<tr><td colspan="6">Recommended literature:
Achieving Clinical Success in Lingual Orthodontics – J. Harfin, A. Ureña, 2015. 1-264.
Lingual Orthodontics – G. Scuzzo, K. Takemoto, 2010. 1-58; 99-117;
Lingual and esthetic orthodontics – R. Romano, 2011. 80-120;
Biomechanics of lingual orthodontics – A. Priyanka, G. Rajiv, 2017. 1-30; 80-102;</td></tr>
<tr><td colspan="4">Total number of classes of active teaching and learning:</td><td colspan="2" rowspan="2">Professional practice/ independent learning:</td></tr>
<tr><td>Lectures:
30</td><td>Practicals:</td><td>Other modes of teaching :
30</td><td>Research paper:</td></tr>
<tr><td colspan="6">Teaching and learning methods: Small groups, seminars, case reports, discussions</td></tr>
<tr><td colspan="6">Assessment (maximum number of points: 100)</td></tr>
<tr><td colspan="2">Pre-exam requirements</td><td>Total 40 points</td><td colspan="2">Final exam 60 points</td><td></td></tr>
<tr><td colspan="2">Participation in lectures</td><td></td><td colspan="2">Written defense of a project on a chosen topic</td><td>60</td></tr>
<tr><td colspan="2">Participation in practicals</td><td></td><td colspan="2">Practical exam</td><td></td></tr>
<tr><td colspan="2">Mid-term test(s)</td><td></td><td colspan="2">Oral exam</td><td></td></tr>
<tr><td colspan="2">Seminars</td><td>20</td><td colspan="2"></td><td></td></tr>
<tr><td colspan="2">Other</td><td>20</td><td colspan="2"></td><td></td></tr>
</table>

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	6E20
Level of studies: Second	
Course: Multidisciplinary Therapy in Orthodontics	
Course Leader (Name, middle letter, surname): Zeljko B. Milosavljevic	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: VI / 12th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_6_20**

Objectives of the course: To acquaint the students with the possibilities for a cooperation between orthodontists and other dental specialists and how orthodontists can participate in: trauma therapy in children, preparation for prosthodontic-implantology rehabilitation, treatment of periodontally compromised patients, combined ortho-surgical therapy in patients with maxillo-facial deformities and cleft palates, the role of oral surgery in patients with excessive or impacted teeth. Also, students will learn the needs of incorporating other dental specialists in solving complex orthodontic cases.

Outcomes of the course: After completing the course and passing the exam, the students should be able to recognize when it is necessary to include orthodontic therapy as a preparation for a definitive management of complex cases, and when they should include other dental specialists in pre-treatment of complex orthodontic patients. Students will get familiar with the importance of a multidisciplinary approach to the doctrines of contemporary dentistry.

Contents of the course: Orthodontics and pediatric dentistry, orthodontics and oral and maxillofacial surgery and implantology, the cooperation with periodontology, odontology and prosthodontics will be considered; the role of an orthodontist in a multi-specialist team care. The first term is devoted to a discussion about the role of orthodontics in other branches of dentistry, and vice-versa during the second term.

Recommended literature:

1. Lauwers L, Wojcik T, Delbarre A, Movaghar R, Ferri J.: Hypodontia: therapeutic strategy elaborated from 30 cases. J Esthet Restor Dent. 2012 Apr;24(2):88-100.
2. Nienkemper M, Pauls A, Ludwig B, Wilmes B, Drescher D.: Preprosthetic molar uprighting using skeletal anchorage. J Clin Orthod. 2013 Jul;47(7):433-7.
3. Richelme J.: Esthetics and pre – prosthetic orthodontic treatment. J Dentofacial Anomalies and Orthodontics 2012.15(03):307.
4. Shetye PR.: Orthodontic management of patients with cleft lip and palate. APOS Trends Orthod 2016;6:281-6.
5. Haryani J, Nagar A, Mehrotra D, and Ranabhatt R: Management of severe skeletal Class III malocclusion with bimaxillary orthognathic surgery Contemp Clin Dent. 2016 Oct-Dec; 7(4): 574–578.
6. Lygidakis, N.N., Chatzidimitriou, K., Theologie-Lygidakis, N. et al.Evaluation of a treatment protocol for unerupted maxillary central incisors: retrospective clinical study of 46 children Eur Arch Paediatr Dent (2015) 16: 153.
7. Cao T, Xu L, Shi J, Zhou Y.Combined orthodontic-periodontal treatment in periodontal patients with anteriorly displaced incisors AJO DO 2015;148(5):805-813.
8. Proffit, W.R.White, R.P. Jr.Combined surgical-orthodontic treatment: How did it evolve and what are the best practices now? AJO DO 2015;147(5):205-215.
9. Rodriguez, J. C.; Suarez, F.; Chan, H. L.; Padial-Molina, M.; Wang, H. Implants for Orthodontic Anchorage: Success Rates and Reasons of Failures Implant Dentistry: 2014;23 (2):155–161.

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods

Assessment (maximum number of points: 100)

Pre-exam compulsory activities	**Total 40 points**	**Final exam 60 points**	
Participation in lectures	20	Written defense of a project on a chosen topic	60
Participation in practicals	20	Practical exam	
Mid-term test(s)		Oral exam	
Seminars			
Other			

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	6E21
Level of studies: Second	
Course: Orthodontic Mini-implants	
Course Leader (Name, middle letter, surname): Nenad Lj. Nedeljkovic	
Course status (compulsory/elective):	
ECTS: 3	**Year of the study: VI / 12th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_6_21**

Objectives of the course:
Acquiring a basic knowledge in the field of advanced possibilities for providing a secure absolute anchorage with orthodontic mini-implants in the treatment of orthodontic malocclusions.

Outcomes of the course:
After completing the course and passing the exam, the student should be able to:
- identify and describe the types of anchorage
- understand the basics of skeletal anchorage
- understand the basic indications for the use of orthodontic mini-implants in the treatment of orthodontic irregularities
- recognize the basic biomechanical principles based on orthodontic mini-implants

Contents of the course:
Types of support and skeletal anchorage bases; parts and characteristics of orthodontic mini-implants, types of orthodontic mini-implants; the manner and place of the application; safe zones for mini-implant applications; loading of mini implants and biomechanics of tooth movement; indications and contraindications for the use of orthodontic mini-implants; therapeutic options.

Recommended literature:

1. Melsen B, Verna C, Luzi C. Mini-implants and their clinical applications: The Arhus experience. Edizioni Martina, Bologna, Italy, 2013. Стр. 2-20.
2. Park HS. Microimplants in orthodontic treatment. Dentos Co, Daegu, Korea, 2015. Стр. 8-138.
3. Lietz T. Mini-screws – Aspects of assessment and selection among different systems. In: Ludwig B, Baumgartel S, Bowman S. Mini-implants in orthodontics – innovative anchorage concepts. Quintessence Publishing Co Ltd, London, 2008. Стр.11-63.
4. Wilmes B. Achieving optimal esthetics with palatal mini-implants – The Benefit technique. In: Nanda R. Esthetics and biomechanics in orthodontics. Elsevier Saunders, St. Louis, 2015. Стр. 360-391.
5. Lee SJ, Kim JK, Park YC, Vanarsdall RL. Treatment planning, surgical procedures and mechanics and limitations. In: Applications of Orthodontic mini-implants. Quintessence Publishing Co Ltd, Chicago, 2007. Стр.51-146.

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods: Small groups, interactive method that involves brief theoretical remarks by teachers, small groups, seminars, interactive discussions, presentations and case analysis. The final exam consists of a writing project - a seminar paper.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	6E22
Level of studies: Second	
Course: Presurgical Orthodontic Treatment	
Course Leader (Name, middle letter, surname): Ivana V. Šćepan	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: VI / 12th semester**
Entry requirements (passed exams from the previous years):	**Course code:I_6_22**

Objectives of the course:
Acquiring a basic knowledge of orthognathic surgery diagnostics, setting adequate indications for pre-surgical orthodontic treatment, and proper and timely referral of the patient to specialists in orthodontics.

Outcomes of the course:
After completing the course and passing the exam, the student should be able to:

- Understand and demonstrate knowledge of the indications for combined orthodontic and surgical treatment of dentofacial deformity
- Clearly explain the purpose, plan and possible complications of the treatment
- Demonstrate knowledge of the possibilities and limitations of orthodontic therapy, and the possibilities of modern orthognathic surgical treatment
- Demonstrate knowledge of the principles of orthodontic therapy of patients with various dentofacial deformities of the face and jaw in order to prepare them for a surgical correction
- Demonstrate knowledge of cephalometric planning as well as treatment planning on study models for patients with dentofacial deformity
- - Demonstrate knowledge of possible surgical and orthodontic complications during the treatment of facial and jaw deformities, including patients with cleft face, lips and palate, and patients with craniofacial deformities.

Contents of the course:
Indications for orthognathic surgical treatment, psychosocial considerations in orthodontics and surgery, medical documentation before surgery, differential diagnosis of dentoalveolar and skeletal minorities, specificities of orthodontic therapy in combined orthognathic surgical treatment, pre-surgical orthodontic treatment the door

Recommended literature:
Proffit RW, Fields HW. Contemporary orthodontics, 3rd edition. 2000, Mosvz, St Louis, pp. 2-147,674-709
Proffit WR, WHITE JR, Sarver DM. Contemporary Treatment of Dentofacial Deformity. 2002, Mosby, St.Louis, 2-269, 417-644

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)			
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals			
Mid-term test(s)			
Seminars	30		
Other	10		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	6E23
Level of studies: Second	
Course: The use of CBCT in Orthodontics and Dentofacial Orthopedics	
Course Leader (Name, middle letter, surname): Neda Lj. Stefanovic	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: VI / 11th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_6_23**

Objectives of the course:
Gaining fundamental knowledge about orthodontic diagnosis based on the analysis of the DICOM dataset obtained using the CBCT scanner.

Outcomes of the course:
At the end of the course, after passing the exam, the student should:
- understand the indications for CBCT scanning of a potential orthodontic patient
- be acquainted with available CBCT image analyses for orthodontic diagnosis purposes
- be able to describe the position of impacted teeth that need to be treated orthodontically
- be able to recognize signs of root resorption
- be able to measure the alveolar bone dimensions
- be able to analyse the upper airways

Contents of the course:
- Indications for CBCT scanning in orthodontics and dentofacial orthopedics
- CBCT image analysis
- Software programs for CBCT image analysis
- CBCT image orientation
- Generating profile and frontal cephalograms, panoramic-like images and TMJ tomograms from the DICOM dataset obtained using the CBCT scanner
- Visualization and analysis of the position of impacted teeth that need to be treated orthodontically
- Three-dimensional tooth position analysis
- Evaluating root resorption
- Measuring alveolar bone dimensions
- Upper airway analysis

Recommended literature:

1. Surgery. Springer. pp. 1-252
2. Palomo, J.M., Valiathan, M. and Hans, M.G., 2014.3D orthodontic diagnosis and treatment planning. Cone beam computed tomography in orthodontics: indications, insights, and innovations, pp.221-246.
3. Cevidanes, L., Benavides, E., Ludlow, J.B., de Oliveira Ruellas, A.C., 2016. Orthodontic diagnosis and treatment planning with cone beam computed tomography imaging. Orthodontics: Current Principles and Techniques, 6th Ed. Graber LW, Vanarsdall RL, Vig KWL, Huang GJ.Elsevier Health Sciences, pp.302-318.
4. Palomo, J.M., El, H., Palomo, L., Strohl, K.P., 2016. Upper Airway, Cranial Morphology, and Sleep Apnea.Orthodontics: Current Principles and Techniques, 6th Ed. Graber LW, Vanarsdall RL, Vig KWL, Huang GJ. Elsevier Health Sciences, pp. 319-352.
5. Stefanovic N. The Use of Cone Beam Computerized Tomography in Airway Analysis, 2013. Andrejevic Endowment, Belgrade, Serbia; Monograph, pp. 60-89

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods: Small group work, seminars, interactive discussions, case reviews and analysis.

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals			
Mid-term test(s)			
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	6E24
Level of studies: Second	
Course: Up-To-Date Radiology In Dentistry	
Course Leader (Name, middle letter, surname): Biljana B. Markovic Vasiljkovic	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: VI / 11th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_6_24**

Objectives of the course: The goal of the course Up-to-date radiology in dentistry is to familiarize the students with modern imaging methods used in diagnosing diseases of the maxillofacial region (computerized tomography, ultrasound, magnetic resonance, hybrid imaging etc.), the principles of image formation and analysis obtained by these methods, as well as the principles of patient protection during performing these radiological methods.
The objective of the course is for the student to gain knowledge about the possibilities of radiological monitoring and control of the treatment of various diseases of the splanchnocranium.

Outcomes of the course:
After completing the course and passing the exam, the student should adopt the knowledge of the principles of performing examination with modern radiological methods:
- Ultrasound
- Computed tomography
- Dental volumetric computed tomography
- Magnetic resonance imaging and nuclear medical methods, used in the diagnosis of diseases of the maxillofacial region.
- Student will be introduced to the diagnostic presentation and evaluation of the more and less common pathological conditions in dentistry.
- They will gain basic knowledge of reconciling imaging findings and hybrid imaging.
- Will be able to select and refer the patient to an appropriate diagnostic procedure based on the clinical findings.

Contents of the course:
Possibilities of standard digital orthopantomography and cone-beam technique in diagnosing pathological changes in the face and jaw region. Computed tomography method: principles and examination techniques and application in diagnosis of diseases of the face and jaw region. Magnetic resonance imaging: review principles and techniques and application in diagnosis of diseases of the face and jaw region. Ultrasound method: principles and techniques of examination and application in diagnostics of diseases of the face and jaw region. The basic principles of nuclear medicine and possibilities of its application in diagnostics of diseases of the face and jaw region.
Principles of selection and comparison of procedure results in evaluation of pathological changes in the face and jaw region. The importance of consiliary examination of patients with diseases of the face and jaws.

Recommended literature:
1.Goldman Lee W.Principles of CT and CT Technology. J. Nucl. Med. Technol. September 2007 vol. 35 no. 3 115-128.
2.Gibby WA. Basic principles of magnetic resonance imaging. Neurosurg Clin N Am. 2005 Jan;16(1):1-64.
3.Cal-Gonzalez J., Rausch I., Shiyam Sundar L.K. et al. Hybrid Imaging: Instrumentation and Data Processing. Frontiers in Physics. 2018. Vol 6.- 47 str.
4.Koong.B. Atlas of oral and maxillofacial radiology. Wiley Blackwell.2017. – 367str.

Total number of classes of active teaching and learning: 30				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	6E25
Level of studies: Second	
Course: Computerized Dentistry	
Course Leader (Name, middle letter, surname): Aleksandar B. Todorović	
Course status (compulsory/elective): Elective	
ECTS: 3	**Year of the study: VI / 11th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_6_25**

Objectives of the course:
Obtaining the theoretical and practical knowledge of computer technology and its applications in dentistry

Outcomes of the course
After completing this course, the students should be able to demonstrate theoretical knowledge concerning the application of computer technologies in the following areas: management in dentistry, e-learning, expert systems, databases, simulations, diagnosis and treatment, computer aided inspection, computer aided design, computer aided manufacturing, computer application in diagnosis and treatment of TMJ disorders, digital photography, digital radiology, computer guided implantology and analysis of the models and images in the diagnosis of malocclusion.

Contents of the course
The subject of computerized dentistry is based on the premise that information technology has the potential to help dentistry realize its vision of improving individual and general oral health systematically and consistently. Advances in the integration of computer technology, as well as innovations in digital imaging, signal processing, intra- and extra-oral digitalization, data visualization, information and knowledge representation can fundamentally improve therapeutic and diagnostic treatments in dentistry. The lectures cover the application of computers in education, therapy and diagnostics, CAD/CAM technologies, computer guided implantology and also include computer application in orthodontics and endodontics. Practical training involves digital shade matching, computer application in the implant planning, basic functions of CAD/CAM systems, computer simulation of orthodontic treatment plan, digital intra- and extra-oral photo imaging and analysis of digital images.

Recommended literature:
Titus Schleyer, HeikoSpallek, Gisela Spallek: Computing in Dentistry, School of Dental Medicine, University of Pittsburgh.
Philippe B. Tardieu, Alan L.Rosenfeld:The Art of Computer - Guided Implantology, Quintessence publishing Co, 2009

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods

Assessment (maximum number of points: 100)

Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		

Table 5.2 Subject specification

Study program: Integrated Studies of Dental Medicine	6E26
Level of studies: Second	
Course: Maxillofacial Prosthodontics	
Course Leader (Name, middle letter, surname): Vojkan M Lazić	
Course status (compulsory/elective): **Elective**	
ECTS: 3	**Year of the study: VI / 12th semester**
Entry requirements (passed exams from the previous years):	**Course code: I_6_26**
Objectives of the course: Introducing students to the possibilities of prosthetic rehabilitation of jaws and facial defects after post-surgical therapy.	
Outcomes of the course: After completing the course, the student is: - capable of recognizing the causes of jaw and facial defects and able to assist a maxillofacial prosthodontist during therapy at all stages of prosthetic rehabilitation; - able to use special materials during the production of maxillofacial prostheses; - familiar with all possible problems during the maxillofacial prosthodontic therapy**.**	
Contents of the course: Introduction to the subject of maxillofacial prosthodontics; Oral and facial tumors and postresectional therapy of maxillofacial region with radiation therapy; Prosthetic therapy of postresectional defects of the upper jaw with different types of dentures; Prosthetic therapy for soft palate defects and the floor of the oral cavity; Obturator prosthesis; Postresectional defects and facial prosthesis therapy; Implant-retained obturator and facial prostheses; Materials for producing maxillofacial prosthesis;	
Recommended literature: Beumer J, Marunick M, Esposito S. Maxillofacial Rehabilitation, Prosthodontic and Surgical Management of Cancer-Related, Acquired, and Congenital Defects of the Head and Neck. 3rd ed. Hanover Park: Quintessence Publishing; 2011. Стр. 68-87, 87-146, 155-201, 213-248, 255-309.	

Total number of classes of active teaching and learning:				Professional practice/ independent learning:
Lectures: 30	Practicals:	Other modes of teaching : 30	Research paper:	

Teaching and learning methods: Teaching is performed in small groups and encompasses an interactive combination of brief theoretical remarks by a lecturer, self-report to a group on a given topic based on previously analyzed literature, discussion on a given topic, analysis of assigned clinical cases.			
Assessment (maximum number of points: 100)			
Pre-exam requirements	**Total 40 points**	**Final exam 60 points**	
Participation in lectures		Written defense of a project on a chosen topic	60
Participation in practicals		Practical exam	
Mid-term test(s)		Oral exam	
Seminars	20		
Other	20		