Sveučilište u Rijeci
University of Rijeka

Sveučilište u Rijeci • Fakultet dentalne medicine
University of Rijeka • Faculty of Dental Medicine

Krešimirova 40/42 • 51000 Rijeka • CROATIA
Phone : + 385 51 559 200; 559 202, 559 203

Course: Dental occlusion and jaw function
Course Coordinator: Assistant Professor Višnja Katić
Course Collaborators: Mia Uhač Ludvig, PhD; Matea Badnjević, Teaching Assistant; Mario Fable, Teaching Assistant
Department: Department of Orthodontics and Department of Prosthodontics
Study program: University Integrated Undergraduate and Graduate Study of Dental Medicine (in English)
Study year: 4
Academic year: 2025/2026

SYLLABUS

Course description (a brief description of the course, general instructions, where and in what form the lessons are organized, necessary equipment, instructions for attendance and preparation for classes, student obligations, etc.):

The course **Dental occlusion and jaw function** is a mandatory course in the fourth year of the Integrated undergraduate and graduate university study of Dental Medicine and consists of 15 hours of lectures, seminars and practicals each, a total of 45 hours. The course is conducted in the practicum room 11, lecture rooms and via e-courses on the Merlin platform.
The aim of the course is to introduce dental medicine students to the concepts of occlusion, functional analysis of the jaw movements, disorders of the temporomandibular area.
The teaching is conducted in the form of lectures, seminars and exercises continuously during the 7th semester. During the seminar, the teacher assesses the students' readiness to present the topic and moderates the discussion. At the end, there is a final exam. By completing all teaching activities, presenting the seminar and taking the final exam, ECTS points are earned.
The student is obliged to participate in the activities provided by the course plan and program.

Assigned reading:

1.Okeson JP. Management of Temporomandibular Disorders and Occlusion, 8th Edition, 2019. Elsevier

Optional/additional reading:

1.McNeill C. Science and Practice of Occlusion, Quintessence Publishing Co., Inc Chicago 1997.
2.Celenza PV. Occlusal Morphology, Quintessence Publishing Co., Inc 1980.
3.Lundeen HC. Introduction Occlusal Anatomy, Kentucky, Lexington 1969.

COURSE TEACHING PLAN:

The list of lectures (with topics and descriptions):

P1 Introduction to the definition and history of occlusion - gnathology
Learning outcomes:
Describe the development and purpose of gnathology.
P2 Functional anatomy of the stomatognathic system
Learning outcomes:
Describe the components of the stomatognathic system.
Distinguish their parts and function.

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P3 Functional anatomy
Learning outcomes:
Define the components of tmz and compare them with each other.
P4 Neurophysiology of the stomatognathic system
Learning outcomes:
Analyze the neurophysiology of the stomatognathic system.
P5 Position of teeth and occlusion
Learning outcomes:
Describe the position of the teeth in the jaw, define classes according to Angle.
Compare concepts of occlusion and define occlusal curves.
P6 Position and movements of the lower jaw
Learning outcomes:
Describe the positions of the jaws, compare the differences between them.
Define jaw movements.
P7 Registration of the position and movements of the lower jaw - hinge axis
Learning outcomes:
Describe the positions and movements of the lower jaw and the device for their registration.
P8 Geometry of occlusion and concepts of occlusion
Learning outcomes:
Analyze the geometry of occlusion and define concepts of occlusion and their application in the stomatognathic system.
P9 Articulators, accessories and technique
Learning outcomes:
To compare the types of articulators, cheek bows and the existing equipment and technique required for their use.
P10 Functional disorders of the stomatognathic system
Learning outcomes:
Define functional disorders of the stomatognathic system, symptomatology, division and classification.
P11 Clinical analysis of functional disorders of the stomatognathic system
Learning outcomes:
Differentiate between different clinical procedures for diagnosing functional disorders of the stomatognathic system.
P12 Instrumental analysis of functional disorders of the stomatognathic system
Learning outcomes:
Distinguish instrumental procedures for the analysis of functional disorders of the stomatognathic system.
P13 Basics of functional disorders therapy
Learning outcomes:
Argue various therapeutic procedures for the treatment of functional disorders and describe the advantages and disadvantages of individual procedures.
P14 Solving cases from clinical practice
Learning outcomes:
Compare different cases and try to solve them (diagnosis, therapy).

The list of seminars with descriptions:

S1 Functions of the masticatory system
Learning outcomes:
Describe the basic masticatory functions (chewing, swallowing, speaking).
S2 Determinants of occlusal morphology
Learning outcomes:
Distinguish the occlusal morphology on the teeth and define the components and their purpose. Explain the

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types of nodules and their function.
S3 Mechanism of orofacial pain
Learning outcomes:
Describe the mechanism of orofacial pain with an emphasis on the neurological component.
Describe the types of pain and how it occurs.
S4 DC/TMD as dg. criterion of TMD
Learning outcomes:
Define the DC/TMD protocol, purpose, use, goal and method of application.
S5 Bruxism – signs and disorder
Learning outcomes:
Describe bruxism - symptomatology, clinical picture, mode of occurrence, types of bruxism and therapy.
S6 Headaches
Learning outcomes:
Define the types of headaches, the way they occur, the connection with TMP and therapy.
S7 Orthodontic anomalies and TMD
Learning outcomes:
To describe what types of orthodontic anomalies and to what extent they are related to the occurrence of TMP and whether this type exists at all with an emphasis on recent developments from the scientific literature.
S8 Bite splints
Learning outcomes:
Define bite splints, types, indications, goal of therapy and how and to what extent they help with TMD.
S9 Physical th
Learning outcomes:
Describe the different modalities of physical therapy and the indication for their use.
S10 Depression and TMD
Learning outcomes:
Define depression and whether and to what extent it is related to TMP (cause and effect relationship).
S11 Parafunctions in children
Learning outcomes:
Describe parafunctions and their manifestation and clinical picture in children.
S12 Implantology
Learning outcomes:
Define implant-prosthetic therapy and its application in TMP patients.
S13 Prevention of injuries in sports
Learning outcomes:
Differentiate between ways of protecting the stomatognathic system from injuries in sports.
S 14 Clinical case presentations
Learning outcomes:
Recapitulation through presentation of clinical cases.

The list of practicals with descriptions:

V1 Medical History taking in TMD patients
Learning outcomes:
Define anamnestic procedures performed in patients with TMD.
V2 Clinical examination of TMD patients
Learning outcomes:
Perform a complete clinical examination of TMP patients.
V3 Radiological evaluation of TMD patients

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Learning outcomes:
To compare different radiological techniques that help us in the diagnosis of TMP and to distinguish when and why certain techniques should be applied in a certain patient and why.

V4 Evaluation of the condition of the occlusal complex
Learning outcomes:
Describe and diagnose the state of the occlusal complex. To compare different occlusal markers used to evaluate the state of the occlusal complex.

V5 Analysis of interjaw relationships - finding reference positions of the mandible
Learning outcomes:
Analyze all positions of the mandible and find relevant positions and bring the patient into them using various techniques and aids.

V6 Analysis of the contact relationship of the teeth in the central position of the mandible
Learning outcomes:
Bring the patient to the central position and analyze the contact relationship of the teeth in that same position.

V7 Analysis of occlusal relations in the intercuspidation position of the mandible
Learning outcomes:
Bring the patient into the intercuspidation position and analyze the contact relationship of the teeth in that same position.

V8 Analysis of occlusal relations during eccentric movements of the mandible
Learning outcomes:
Define eccentric positions and bring the patient into these positions and analyze the values of these movements.

V9 Taking impressions for studio models and casting in plaster
Learning outcomes:
Make anatomical impressions and then cast in plaster.

V10 Determining the intercondylar hinge axis and molding the molded models into the articulator
Learning outcomes:
Describe the determination of the intercondylar hinge axis and sculpt the included models into the articulator.

V11 Anterior and posterior guidance, wax registration, condyle track adjustment, protrusion registration
Learning outcomes:
Distinguish between front and rear guidance. Make wax registers, protrusion registers, adjust the condylar path.

V12 Laterotrusion registration, Bennett movement and angle, articulator adjustment
Learning outcomes:
Make laterotrusion registrations, determine Bennett's angle and individualize the articulator.

V13 Solving practical cases
Learning outcomes:
Recapitulation through the presentation of cases from clinical practice.

V 14 Clinical case report
Learning outcomes:
Describe a complete functional analysis in TMP patients.

V 15 Practical exam

Students' obligations:

Student is obliged to participate in the activities provided by the course plan and program.

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COURSE SCHEDULE (for the academic year 2025/2026)

Date	Lectures (time and place)	Seminars (time and place)	Practicals (time and place)	Instructor
2.10.2025.			10:15-11:00	Matea Badnjević, DMD
			Room 11	
			Krešimirova 42	
3.10.2025.	10:15-11:00	11:00-11:45		Assistant Professor Magda Trinajstić Zrinski
	Lecture Room	Lecture Room		
	Krešimirova 42	Krešimirova 42		
9.10.2025.			10:15-11:00	Matea Badnjević, DMD
			Room 11	
			Krešimirova 42	
10.10.2025.	10:15-11:00	11:00-11:45		Assistant Professor Magda Trinajstić Zrinski
	Lecture Room	Lecture Room		
	Krešimirova 42	Krešimirova 42		
16.10.2025.			10:15-11:00	Matea Badnjević, DMD
			Room 11	
			Krešimirova 42	
17.10.2025.	10:15-11:00	11:00-11:45		Assistant Professor Magda Trinajstić Zrinski
	Lecture Room	Lecture Room		
	Krešimirova 42	Krešimirova 42		
23.10.2025.			10:15-11:00	Matea Badnjević, DMD
			Room 11	
			Krešimirova 42	
24.10.2025.	10:15-11:00	11:00-11:45		Assistant Professor Višnja Katić
	Lecture Room	Lecture Room		
	Krešimirova 42	Krešimirova 42		
30.10.2025.			10:15-11:00	Matea Badnjević, DMD
			Room 11	
			Krešimirova 42	
31.10.2025.	10:15-11:00	11:00-11:45		Assistant Professor Višnja Katić
	Lecture Room	Lecture Room		
	Krešimirova 42	Krešimirova 42		

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6.11.2025.			10:15-11:00	Matea Badnjević, DMD
			Room 11	
			Krešimirova 42	
7.11.2025.	10:15-11:00	11:00-11:45		Assistant Professor Višnja Katić
	Lecture Room	Lecture Room		
	Krešimirova 42	Krešimirova 42		
13.11.2025.			10:15-11:00	Matea Badnjević, DMD
			Room 11	
			Krešimirova 42	
14.11.2025.	10:15-11:00	11:00-11:45		Assistant Professor Višnja Katić
	Lecture Room	Lecture Room		
	Krešimirova 42	Krešimirova 42		
20.11.2025.			10:15-11:00	Matea Badnjević, DMD
			Room 11	
			Krešimirova 42	
21.11.2025.	10:15-11:00	11:00-11:45		Assistant Professor Višnja Katić
	Lecture Room	Lecture Room		Mia Uhač Ludvig, PhD
	Krešimirova 42	Krešimirova 42		
27.11.2025.			10:15-11:00	Mario Fable, DMD
			Room 11	
			Krešimirova 42	
28.11.2025.	10:15-11:00	11:00-11:45		Assistant Professor Višnja Katić
	Lecture Room	Lecture Room		Mia Uhač Ludvig, PhD
	Krešimirova 42	Krešimirova 42		
4.12.2025.			10:15-11:00	Mario Fable, DMD
			Room 11	
			Krešimirova 42	
5.12.2025.	10:15-11:00	11:00-11:45		Assistant Professor Višnja Katić
	Lecture Room	Lecture Room		
	Krešimirova 42	Krešimirova 42		
11.12.2025.			10:15-11:00	Mario Fable, DMD
			Room 11	
			Krešimirova 42	
12.12.2025.	10:15-11:00	11:00-11:45		Assistant Professor Višnja Katić
	Lecture Room	Lecture Room		Mia Uhač Ludvig, PhD
	Krešimirova 42	Krešimirova 42		
18.12.2025.			10:15-11:00	Mario Fable, DMD
			Room 11	
			Krešimirova 42	
19.12.2025.	10:15-11:00	11:00-11:45		Assistant Professor Višnja Katić
	Lecture Room	Lecture Room		Mia Uhač Ludvig, PhD
	Krešimirova 42	Krešimirova 42		
8.1.2026.			10:15-11:00	Mario Fable, DMD
			Room 11	

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			Krešimirova 42	
9.1.2026.	10:15-11:00	11:00-11:45		Assistant Professor Višnja Katić
	Lecture Room	Lecture Room		Mia Uhač Ludvig, PhD
	Krešimirova 42	Krešimirova 42		
15.1.2026.			10:15-11:00	Mario Fable, DMD
			Room 11	
			Krešimirova 42	
16.1.2026.	10:15-11:00	11:00-11:45		Assistant Professor Višnja Katić
	Lecture Room	Lecture Room		Mia Uhač Ludvig, PhD
	Krešimirova 42	Krešimirova 42		
22.1.2026.			10:15-11:00	Mario Fable, DMD
			Room 11	
			Krešimirova 42	
23.1.2026.	10:15-11:00	11:00-11:45		Assistant Professor Višnja Katić
	Lecture Room	Lecture Room		Mia Uhač Ludvig, PhD
	Krešimirova 42	Krešimirova 42		

List of lectures, seminars and practicals:

	LECTURES (Topics)	Teaching hours	Location/Lecture room
L1	Introduction to the definition and history of occlusion - gnathology	1	Krešimirova 42, Lecture Room
L2	Functional anatomy of the stomatognathic system	1	Krešimirova 42, Lecture Room
L3	Functional anatomy of TMJ	1	Krešimirova 42, Lecture Room
L4	Neurophysiology of the Stomatognathic System	1	Krešimirova 42, Lecture Room
L5	Position of teeth and occlusion	1	Krešimirova 42, Lecture Room
L6	Position and movements of the lower jaw	1	Krešimirova 42, Lecture Room
L7	Registration of the position and movements of the lower jaw - hinge axis	1	Krešimirova 42, Lecture Room
L8	Geometry of occlusion and concept of occlusion	1	Krešimirova 42, Lecture Room
L9	Articulators	1	Krešimirova 42, Lecture Room
L10	Functional disorders of the stomatognathic system	1	Krešimirova 42, Lecture Room
L11	Clinical analysis of functional disorders of the stomatognathic system	1	Krešimirova 42, Lecture Room
L12	Instrumental analysis of functional disorders of the stomatognathic system	1	Krešimirova 42, Lecture Room

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L13	Basics of therapy for functional disorders	1	Krešimirova 42, Lecture Room
L14	Clinical presentations	1	Krešimirova 42, Lecture Room
L15	Clinical presentations	1	Krešimirova 42, Lecture Room
	TOTAL TEACHING HOURS	**15**	

	SEMINARS (Topics)	**Teaching hours**	**Location/Lecture room**
S1	Functions of the masticatory system	1	Krešimirova 42, Lecture Room
S2	Determinants of occlusal morphology	1	Krešimirova 42, Lecture Room
S3	Mechanism of orofacial pain	1	Krešimirova 42, Lecture Room
S4	DC/TMD as dg. criterion of TMD	1	Krešimirova 42, Lecture Room
S5	Bruxism – signs and disorder	1	Krešimirova 42, Lecture Room
S6	Headaches	1	Krešimirova 42, Lecture Room
S7	Orthodontic anomalies and TMD	1	Krešimirova 42, Lecture Room
S8	Bite splints	1	Krešimirova 42, Lecture Room
S9	Physical th	1	Krešimirova 42, Lecture Room
S10	Depression and TMD	1	Krešimirova 42, Lecture Room
S11	Parafunctions in children	1	Krešimirova 42, Lecture Room
S12	Implantology	1	Krešimirova 42, Lecture Room
S13	Prevention of injuries in sports	1	Krešimirova 42, Lecture Room
S14	Clinical cases	1	Krešimirova 42, Lecture Room
S15	Clinical cases	1	Krešimirova 42, Lecture Room
	TOTAL TEACHING HOURS	**15**	

	PRACTICALS (Topics)	**Teaching hours**	**Location/Lecture room**
P1	Medical History taking in TMD patients	1	Krešimirova 42

			Room 11
P2	Clinical examination of TMD patients	1	Krešimirova 42 Room 11
P3	Radiological evaluation of TMD patients	1	Krešimirova 42 Room 11
P4	Evaluation of the condition of the occlusal complex	1	Krešimirova 42 Room 11
P5	Analysis of interjaw relationships - finding reference positions of the mandible	1	Krešimirova 42 Room 11
P6	Analysis of the contact relationship of the teeth in the central position of the mandible	1	Krešimirova 42 Room 11
P7	Analysis of occlusal relations in the intercuspidation position of the mandible	1	Krešimirova 42 Room 11
P8	Analysis of occlusal relations during eccentric movements of the mandible	1	Krešimirova 42 Room 11
P9	Taking impressions for studio models and casting in plaster	1	Krešimirova 42 Room 11
P10	Determining the intercondylar hinge axis and molding the molded models into the articulator	1	Krešimirova 42 Room 11
P11	Anterior and posterior guidance, wax registration, Condyle track adjustment, protrusion registration	1	Krešimirova 42 Room 11
P12	Laterotrusion registration, Bennett movement and angle, articulator adjustment	1	Krešimirova 42 Room 11
P13	Solving practical cases	1	Krešimirova 42 Room 11
P14	Clinical case reports	1	Krešimirova 42 Room 11
P15	Practical exam	1	Krešimirova 42 Room 11
	TOTAL TEACHING HOURS	15	

	FINAL EXAM DATES
1.	30.1.2026.
2.	13.2.2026.
3.	12.6.2026.

	Lectures	**Seminars**	**Practicals**	**Total**
Total number	15	15	15	45

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On-line				
Percentage				