



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: 2026/2027

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.



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



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



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 intercuspitation position of the mandible

Learning outcomes:

Bring the patient into the intercuspitation 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.



COURSE SCHEDULE (for the academic year 2026/2027)

Date	Lectures (time and place)	Seminars (time and place)	Practicals (time and place)	Instructor
1.10.2026.			10:15-11:00	Matea Badnjević, DMD
			Room 11	
			Krešimirova 42	
2.10.2026.	10:15-11:00	11:00-11:45		Assistant Professor Magda Trinajstić Zrinski
	Lecture Room	Lecture Room		
	Krešimirova 42	Krešimirova 42		
8.10.2026.			10:15-11:00	Matea Badnjević, DMD
			Room 11	
			Krešimirova 42	
9.10.2026.	10:15-11:00	11:00-11:45		Assistant Professor Magda Trinajstić Zrinski
	Lecture Room	Lecture Room		
	Krešimirova 42	Krešimirova 42		
15.10.2026.			10:15-11:00	Matea Badnjević, DMD
			Room 11	
			Krešimirova 42	
16.10.2026.	10:15-11:00	11:00-11:45		Assistant Professor Magda Trinajstić Zrinski
	Lecture Room	Lecture Room		
	Krešimirova 42	Krešimirova 42		
22.10.2026.			10:15-11:00	Matea Badnjević, DMD
			Room 11	
			Krešimirova 42	
23.10.2026.	10:15-11:00	11:00-11:45		Assistant Professor Višnja Katić
	Lecture Room	Lecture Room		
	Krešimirova 42	Krešimirova 42		
29.10.2026.			10:15-11:00	Matea Badnjević, DMD
			Room 11	
			Krešimirova 42	
30.10.2026.	10:15-11:00	11:00-11:45		Assistant Professor Višnja Katić
	Lecture Room	Lecture Room		
	Krešimirova 42	Krešimirova 42		



5.11.2026.			10:15-11:00	Matea Badnjević, DMD
			Room 11	
			Krešimirova 42	
6.11.2026.	10:15-11:00	11:00-11:45		Assistant Professor Višnja Katić
	Lecture Room	Lecture Room		
	Krešimirova 42	Krešimirova 42		
12.11.2026.			10:15-11:00	Matea Badnjević, DMD
			Room 11	
			Krešimirova 42	
13.11.2026.	10:15-11:00	11:00-11:45		Assistant Professor Višnja Katić
	Lecture Room	Lecture Room		
	Krešimirova 42	Krešimirova 42		
19.11.2026.			10:15-11:00	Matea Badnjević, DMD
			Room 11	
			Krešimirova 42	
20.11.2026.	10:15-11:00	11:00-11:45		Assistant Professor Višnja Katić
	Lecture Room	Lecture Room		Mia Uhač Ludvig, PhD
	Krešimirova 42	Krešimirova 42		
26.11.2026.			10:15-11:00	Mario Fable, DMD
			Room 11	
			Krešimirova 42	
27.11.2026.	10:15-11:00	11:00-11:45		Assistant Professor Višnja Katić
	Lecture Room	Lecture Room		Mia Uhač Ludvig, PhD
	Krešimirova 42	Krešimirova 42		
3.12.2026.			10:15-11:00	Mario Fable, DMD
			Room 11	
			Krešimirova 42	
4.12.2026.	10:15-11:00	11:00-11:45		Assistant Professor Višnja Katić
	Lecture Room	Lecture Room		
	Krešimirova 42	Krešimirova 42		
10.12.2026.			10:15-11:00	Mario Fable, DMD
			Room 11	
			Krešimirova 42	
11.12.2026.	10:15-11:00	11:00-11:45		Assistant Professor Višnja Katić
	Lecture Room	Lecture Room		Mia Uhač Ludvig, PhD
	Krešimirova 42	Krešimirova 42		
17.12.2026.			10:15-11:00	Mario Fable, DMD
			Room 11	
			Krešimirova 42	
18.12.2026.	10:15-11:00	11:00-11:45		Assistant Professor Višnja Katić
	Lecture Room	Lecture Room		Mia Uhač Ludvig, PhD
	Krešimirova 42	Krešimirova 42		
7.1.2027.			10:15-11:00	Mario Fable, DMD
			Room 11	



			Krešimirova 42	
8.1.2027.	10:15-11:00	11:00-11:45		Assistant Professor Višnja Katić
	Lecture Room	Lecture Room		Mia Uhač Ludvig, PhD
	Krešimirova 42	Krešimirova 42		
14.1.2027.			10:15-11:00	Mario Fable, DMD
			Room 11	
			Krešimirova 42	
15.1.2027.	10:15-11:00	11:00-11:45		Assistant Professor Višnja Katić
	Lecture Room	Lecture Room		Mia Uhač Ludvig, PhD
	Krešimirova 42	Krešimirova 42		
21.1.2027.			10:15-11:00	Mario Fable, DMD
			Room 11	
			Krešimirova 42	
22.1.2027.	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



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 intercuspitation 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.	28.1.2027.
2.	18.2.2027.
3.	4.3.2027.

	Lectures	Seminars	Practicals	Total
Total number	15	15	15	45



Sveučilište u Rijeci
University of Rijeka



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