



Course: Endodontics

Course Coordinator: Prof. Ivana Brekalo Pršo PhD DMD

Course Collaborators: Prof. Alen Braut, PhD,DMD, Asst Prof. Romana Peršić Bukmir PhD DMD, Asst Prof. Damir Šnjarić PhD DMD, Ivana Vidović Zdrilić PhD DMD,

Department: Endodontics and restorative dentistry

Study program: University Integrated Undergraduate and Graduate Study of Dental Medicine (in English)

Study year: 5th

Academic year: 2024./25.

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.):

Endodontics is a fundamental and specialized area of dental medicine that includes the etiology, diagnostics, and therapy of endodontic, periradicular, and periapical tissue diseases. The course Endodontics is a mandatory course that extends from 4th to 6th year of Integrated Undergraduate and Graduate Study of Dental Medicine. Teaching is conducted through lectures, seminars, and preclinical and clinical practical work. In 4th year of study, the course is taught through 30 lectures, 10 seminars, and 45 hours of preclinical work (a total of 85 hours or 5.5 ECTS points). The aim of this course is to acquaint students with the morphology of the root anatomy including developmental and morphological anomalies, and pulp and periapical pathology. Root canal instrumentation together with obturating materials, various obturation techniques, and postendodontic management will be introduced. This course comprehensively includes the diagnosis and therapy of pulp and periapical diseases and endodontic surgery. Students are obligated to attend all forms of classes. For seminars, preclinical and clinical practice, students must be theoretically prepared according to the topics of the lectures. Without theoretical knowledge, the students are not allowed to work on preclinical models or patients.

Assigned reading:

1. Walton RE, Torabinejad M, Bakland LK. Endodontics. Principles and Practice (10th ed). St. Louis, Missouri: Elsevier. 2009.

Optional/additional reading:

1. Cohen S, Burns RC. Pathways of the Pulp. X th., Mosby Inc. St. Louis, 2011.
2. Rotstein I, Ingle JI. Ingle's Endodontics 7. PMPH USA, Ltd. Raleigh, North Carolina, 2019.



3. Bergenholtz G, Horsted-Bindslev P, Reit C. Textbook of Endodontology, Wiley Blackwell, 2010.
4. Beer R, Baumann MA, Kim S. Color Atlas of Dental Medicine: Endodontology, Thieme, New York, 2000.
5. PhD thesis in field of endodontics
6. Scientific journals: Journal of Endodontics, International Endodontic Journal

COURSE TEACHING PLAN:

The list of seminars with descriptions:

S1 Risk patients

Learning outcomes: Classify high-risk patients. To analyze diseases that can affect the decision and implementation of endodontic therapy and the method of treatment of the risk group of patients.

S2 Use of antibiotics in endodontics

Learning outcomes: Analyze antibiotics used in endodontics, their pharmacological action and clinical application. Assess the need for prophylactic and/or therapeutic use of antibiotics in endodontics.

S3 Emergencies in endodontics

Learning outcomes: Recognize emergency situations and how to deal with them.

S4 Tooth resorption and bioceramic materials

Learning outcomes: Classify tooth resorption. Familiarize yourself with the method of treating tooth resorption. Get to know the pharmacokinetic properties and indications for the use of bioceramic materials.

S5 Cracked tooth system and root fractures

Learning outcomes: To analyze the clinical signs that indicate the existence of crack tooth sy, by way of diagnosis and therapy. Analyze the division of root fractures, diagnostics and therapeutic procedures.

S6 Ni-Ti instruments

Learning outcomes: Investigate the properties of nickel-titanium alloy and their application in endodontics. Compare their properties and clinical application with stainless steel instruments.

S7 Rotary instrumentation techniques

Learning outcomes: Analyze the rotary techniques of root canal instrumentation. Explain the way of conducting the instrumentation. Define the basic advantages and disadvantages for each technique.

S8 Revision of endodontic filling

Learning outcomes: Explain the indications for performing endodontic filling revisions. Explain the way of conducting the procedure.

S9 Complications and failures of endodontic therapy

Learning outcomes: State the possible reasons for the failure of endodontic therapy and the occurrence of complications, and how to solve them.

S10 Whitening of vital teeth

Learning outcomes: List the indications and contraindications for whitening vital teeth. List bleaching agents and describe the procedure.



The list of practicals with descriptions:

Exercises in the subject of Endodontics are conducted at the Clinic for Dental Medicine of the Rijeka Clinical Hospital Center. The exercises are clinical and are performed on patients under the supervision of the exercise instructor. Students practice basic skills in creating an access cavity, instrumentation, irrigation and root canal filling.

P1 – P15

Learning outcomes:

Analyze anamnestic data and act therapeutically in accordance with them (risk patients, etc. prophylaxis, pregnant women, etc.)

Analyze (diagnose) diseases of the pulp and periapical periodontium

Interpret diagnostic procedures and their importance

Based on the diagnostic data, evaluate (set) the diagnosis and determine the therapy (therapy of pulp and periapical periodontal disease)

Explain the morphology of the endodontic space of an individual tooth

Establish a dry working field

Perform individual phases of endodontic therapy (access cavity, root canal instrumentation, root canal filling)

Use and differentiate endodontic instruments

Handle dental materials and apply them in accordance with the indication

Analyze the CBCT image / make a diagnosis

Students' obligations:

Students are required to regularly attend and actively participate in all forms of teaching. Attendance at lectures, seminars, and practical exercises is mandatory. A student may miss up to 30% of classes solely for health reasons (justified by a medical certificate) or a death in the family

Assessment (exams, description of written / oral / practical exam, the scoring criteria):

Student evaluation is conducted according to the current Regulations on Studies and Studying at the University of Rijeka. According to the regulations of the University of Rijeka, a student must achieve 50% of the grade during the course to be eligible for the final exam, with the remaining 50% of the grade obtained at the final exam. Out of a total of 100 grade points, a student can earn 50 points during the course and another 50 points on the exam. Student grading is done using the ECTS (A-F) and numerical system (1-5). Grading in the ECTS system is done by absolute distribution.

Students earn grade points through active participation in classes, completing assigned tasks, and success in colloquia. During the course, points are earned through exercises and continuous knowledge checks.

PRACTICAL EXERCISES: Exercises are held in the 8th, 9th, 10th, and 11th semesters.

Exercise leaders will assess theoretical knowledge and practical work on a patient. During the exercises, the student must independently perform the assigned phases of treatment, which are



graded as A, B, or C. Grade C means a failing grade. If a student receives a grade of C twice during the year, it is considered that they have not met the prescribed obligations from the exercise plan and program (have not achieved the minimum 50% grade) and cannot progress to the next year of study. The student earns a certain number of points in each academic year during exercises (5 points in the 8th, 9th, and 10th semesters, and 10 points in the 11th semester), which are added to the overall grade on the final exam. Participation in preclinical and clinical exercises requires wearing a white medical uniform (in accordance with the health and safety regulations of the health and educational institution). The exercise leader can remove a student from exercises if they are inappropriately dressed or behave inappropriately.

SEMINARS:

Seminar work is an active part of teaching and requires mandatory theoretical preparation by students. Each student must have one PowerPoint presentation and/or oral presentation by the final exam, which will be worth 5 points.

COLLOQUIA:

Continuous knowledge checks will be conducted through written midterm exams (colloquia) held at the end of the 8th and 10th semesters. A maximum of 10 points can be earned per colloquium (2 colloquia max 20 points). Students who do not pass a colloquium (less than 50% of the test solved) will be allowed one remedial colloquium.

FINAL EXAM:

The final exam is practical and oral and covers the material specified in the course plan and program. A maximum of 50 points can be earned on the final exam, 20 points in the practical part and 30 in the oral part. The practical exam consists of a clinical dental examination, reading of a radiological image, and performing endodontic treatment (performing a phase of therapy or orally explaining it). In the oral part of the exam, the student must positively answer the questions covering all chapters of endodontics. The final exam grade is formed based on the student's overall activity, i.e., points collected during all semesters and points on the final exam. For a passing grade on the final exam, both the practical and oral parts must be successfully completed. For the final exam, the student must bring a completed Record Book of Preclinical and Clinical Exercises. In case of a failing grade on the final exam, the student has the right to take the next exam term (minimum 15 days from the last term).

Grading in the ECTS system is done by absolute distribution, based on the final achievement:

- Points earned on colloquia and exercises are added to the exam points
- Final grade:
 - 0-49.9%: insufficient 1 F
 - 50-59.9%: sufficient 2 D
 - 60-74.9%: good 3 C
 - 75-89.9%: very good 4 B
 - 90-100%: excellent 5 A



Other important information regarding to the course:

Any use of another's text or other form of the author's work, as well as the use of ChatGPT or any of another tool whose functionality is based on artificial intelligence technology, without unambiguous citation of sources is considered a violation of someone else's copyright and the principle of academic integrity and represents serious violation of student obligations, which entails disciplinary responsibility and disciplinary measures accordingly.
Rulebook on disciplinary responsibility of students.
Consultation time: Wednesday 13.15 – 14.00

COURSE SCHEDULE (for the academic year 2024/2025)

Date	Lectures (time and place)	Seminars (time and place)	Practicals (time and place)	Instructor
02.10.2024.			P1 D (16.30 – 18.30) Clinical office no.7	Prof. Alen Braut, PhD,DMD Ivana vidović Zdrilić, PhD, DMD
		S1 (18.30-19.15) ONLINE		Ivana vidović Zdrilić, PhD, DMD
09.10.2024.			P2 D (16.30 – 18.30) Clinical office no.7	Prof. Alen Braut, PhD,DMD Ivana vidović Zdrilić, PhD, DMD
		S2 (18.30-19.15) ONLINE		Ivana vidović Zdrilić, PhD, DMD
16.10.2024.			P3 D (16.30 – 18.30) Clinical office no.7	Prof. Alen Braut, PhD,DMD Ivana vidović Zdrilić, PhD, DMD
		S3 (18.30-19.15) ONLINE		Ivana vidović Zdrilić, PhD, DMD
23.10.2024.			P4 D (16.30 – 18.30) Clinical office no.7	Prof. Alen Braut, PhD,DMD Ivana vidović Zdrilić, PhD, DMD
		S4 (18.30-19.15) ONLINE		Ivana vidović Zdrilić, PhD, DMD
30.10.2024.			P5 D (16.30 – 18.30) Clinical office no.7	Prof. Alen Braut, PhD,DMD Ivana vidović Zdrilić, PhD, DMD



		S5 (18.30-19.15) ONLINE		Ivana vidović Zdrilić, PhD, DMD
06.11.2024.			P6 D (16.30 – 18.30) Clinical office no.7	Prof. Alen Braut, PhD,DMD Ivana vidović Zdrilić, PhD, DMD
		S6 (18.30-19.15) ONLINE		Ivana vidović Zdrilić, PhD, DMD
13.11.2024.			P7 D (16.30 – 18.30) Clinical office no.7	Prof. Alen Braut, PhD,DMD Ivana vidović Zdrilić, PhD, DMD
		S7 (18.30-19.15) ONLINE		Ivana vidović Zdrilić, PhD, DMD
20.11.2024.			P8 D (16.30 – 18.30) Clinical office no.7	Prof. Alen Braut, PhD,DMD Ivana vidović Zdrilić, PhD, DMD
		S8 (18.30-19.15) ONLINE		Ivana vidović Zdrilić, PhD, DMD
27.11.2024.			P9 D (16.30 – 18.30) Clinical office no.7	Prof. Alen Braut, PhD,DMD Ivana vidović Zdrilić, PhD, DMD
		S9 (18.30-19.15) ONLINE		Ivana vidović Zdrilić, PhD, DMD
04.12.2024.			P10 D (16.30 – 18.30) Clinical office no.7	Prof. Alen Braut, PhD,DMD Ivana vidović Zdrilić, PhD, DMD
		S10 (18.30-19.15) ONLINE		Ivana vidović Zdrilić, PhD, DMD
11.12.2024.			P11 D (16.30 – 18.30) Clinical office no.7	Prof. Alen Braut, PhD,DMD Ivana vidović Zdrilić, PhD, DMD
18.12.2024.			P12 D (16.30 – 18.30) Clinical office no.7	Prof. Alen Braut, PhD,DMD Ivana vidović Zdrilić, PhD, DMD
08.01.2025.			P13 D (16.30 – 18.30) Clinical office no.7	Prof. Alen Braut, PhD,DMD Ivana vidović Zdrilić, PhD, DMD



15.01.2025.			P14 D (16.30 – 18.30) Clinical office no.7	Prof. Alen Braut, PhD,DMD Ivana vidović Zdrilić, PhD, DMD
22.01.2025.			P15 D (16.30 – 18.30) Clinical office no.7	Prof. Alen Braut, PhD,DMD Ivana vidović Zdrilić, PhD, DMD
05.03.2025.			P16 D (16.30 – 18.30) Clinical office no.7	Ivana vidović Zdrilić, PhD, DMD Asst Prof. Romana Peršić Bukmir, PhD DMD
12.03.2025.			P17 D (16.30 – 18.30) Clinical office no.7	Ivana vidović Zdrilić, PhD, DMD Asst Prof. Romana Peršić Bukmir, PhD DMD
19.03.2025.			P18 D (16.30 – 18.30) Clinical office no.7	Ivana vidović Zdrilić, PhD, DMD Asst Prof. Romana Peršić Bukmir, PhD DMD
26.03.2025.			P19 D (16.30 – 18.30) Clinical office no.7	Ivana vidović Zdrilić, PhD, DMD Asst Prof. Romana Peršić Bukmir, PhD DMD
02.04.2025.			P20 D (16.30 – 18.30) Clinical office no.7	Ivana vidović Zdrilić, PhD, DMD Asst Prof. Romana Peršić Bukmir, PhD DMD
16.04.2025.			P21 D (16.30 – 18.30) Clinical office no.7	Ivana vidović Zdrilić, PhD, DMD Asst Prof. Romana Peršić Bukmir, PhD DMD
23.04.2025.			P22 D (16.30 – 18.30) Clinical office no.7	Ivana vidović Zdrilić, PhD, DMD Asst Prof. Romana Peršić Bukmir, PhD DMD
30.04.2025.			P23 D (16.30 – 18.30) Clinical office no.7	Ivana vidović Zdrilić, PhD, DMD Asst Prof. Romana Peršić Bukmir, PhD DMD
07.05.2025.			P24 D (16.30 – 18.30) Clinical office no.7	Ivana vidović Zdrilić, PhD, DMD Asst Prof. Romana Peršić Bukmir, PhD DMD
14.05.2025.			P25 D (16.30 – 18.30) Clinical office no.7	Ivana vidović Zdrilić, PhD, DMD Asst Prof. Romana Peršić Bukmir, PhD DMD



21.05.2025.			P26 D (16.30 – 18.30) Clinical office no.7	Ivana vidović Zdrilić, PhD, DMD Asst Prof. Romana Peršić Bukmir, PhD DMD
28.05.2025.			P27 D (16.30 – 18.30) Clinical office no.7	Ivana vidović Zdrilić, PhD, DMD Asst Prof. Romana Peršić Bukmir, PhD DMD
04.06.2025.			P28 D (16.30 – 18.30) Clinical office no.7	Ivana vidović Zdrilić, PhD, DMD Asst Prof. Romana Peršić Bukmir, PhD DMD
11.06.2025.			P29 D (16.30 – 18.30) Clinical office no.7	Ivana vidović Zdrilić, PhD, DMD Asst Prof. Romana Peršić Bukmir, PhD DMD

List of seminars and practicals:

	SEMINARS (Topics)	Teaching hours	Location/Lecture room
S1	Risk patients	1	Krešimirova 40
S2	Use of antibiotics in endodontics	1	Krešimirova 40
S3	Endodontic radiography	1	Krešimirova 40
S4	Tooth resorption and bioceramic materials	1	Krešimirova 40
S5	Cracked tooth system and root fractures	1	Krešimirova 40
S6	Ni-Ti instruments	1	Krešimirova 40
S7	Rotary instrumentation techniques	1	Krešimirova 40
S8	Revision of endodontic filling	1	Krešimirova 40
S9	Complications and failures of endodontic therapy	1	Krešimirova 40
S10	Whitening of vital teeth	1	Krešimirova 40
	TOTAL TEACHING HOURS	10	

	PRACTICALS (Topics)	Teaching hours	Location/Lecture room
P1	Diagnostics of endodontic diseases	3	Krešimirova 42
P2	Diagnostics of endodontic diseases	3	Krešimirova 42
P3	Diagnostics of endodontic diseases Coronary phase of endodontic therapy	3	Krešimirova 42
P4	Diagnostics of endodontic diseases	3	Krešimirova 42



	Coronary phase of endodontic therapy		
P5	Diagnostics of endodontic diseases Coronary phase of endodontic therapy	3	Krešimirova 42
P6	Diagnostics of endodontic diseases Coronary phrase of endodontic therapy	3	Krešimirova 42
P7	Diagnostics of endodontic diseases Instrumentation of root canal with irrigation	3	Krešimirova 42
P8	Diagnostics of endodontic diseases Instrumentation of root canal with irrigation	3	Krešimirova 42
P9	Diagnostics of endodontic diseases Instrumentation of root canal with irrigation	3	Krešimirova 42
P10	Diagnostics of endodontic diseases Instrumentation of root canal with irrigation	3	Krešimirova 42
P11	Diagnostics of endodontic diseases Instrumentation of root canal with irrigation Root canal filling	3	Krešimirova 42
P12	Diagnostics of endodontic diseases Instrumentation of root canal with irrigation Root canal filling	3	Krešimirova 42
P13	Diagnostics of endodontic diseases Instrumentation of root canal with irrigation Root canal filling	3	Krešimirova 42
P14	Diagnostics of endodontic diseases Instrumentation of root canal with irrigation Root canal filling	3	Krešimirova 42
P15	Diagnostics of endodontic diseases Instrumentation of root canal with irrigation Root canal filling	3	Krešimirova 42
P16	Treatment of all endodontic and periapical pathological lesions	3	Krešimirova 42
P17	Treatment of all endodontic and periapical pathological lesions	3	Krešimirova 42
P18	Treatment of all endodontic and periapical pathological lesions	3	Krešimirova 42
P19	Treatment of all endodontic and periapical pathological lesions	3	Krešimirova 42
P20	Treatment of all endodontic and periapical pathological lesions	3	Krešimirova 42
P21	Treatment of all endodontic and periapical pathological lesions	3	Krešimirova 42
P22	Treatment of all endodontic and periapical pathological lesions	3	Krešimirova 42
P23	Treatment of all endodontic and periapical pathological lesions	3	Krešimirova 42



P24	Treatment of all endodontic and periapical pathological lesions	3	Krešimirova 42
P25	Treatment of all endodontic and periapical pathological lesions	3	Krešimirova 42
P26	Treatment of all endodontic and periapical pathological lesions	3	Krešimirova 42
P27	Treatment of all endodontic and periapical pathological lesions	3	Krešimirova 42
P28	Treatment of all endodontic and periapical pathological lesions	3	Krešimirova 42
P29	Treatment of all endodontic and periapical pathological lesions	3	Krešimirova 42
P30	Treatment of all endodontic and periapical pathological lesions	3	Krešimirova 42
TOTAL TEACHING HOURS		90	

FINAL EXAM DATES	
1.	
2.	
3.	

	Lectures	Seminars	Practicals	Total
Total number	0	10	30	40
On-line	0	10	0	10
Percentage	0	100%	0	25%