COURSE SYLLABUS

Semmelweis University, Faculty of Dentistry,
Doctor of Medicine in Dentistry Program

Name of the course in Hungarian: Restauratív Fogászat és Endodoncia V.

In English[1]: Restorative Dentistry and Endodontics V.

In German[1]: Restaurative Zahnheilkunde und Endodontologie V.

Credits: 3

Number of hours: 36 of which lectures: 0 practicals: 12 x 3 seminars: 0

Course type: compulsory compulsory elective elective

Semester in which the course is offered, according to the curriculum: 10th Semester

Frequency of announcement: per year

The educational research unit teaching the course:

Department of Restorative Dentistry and Endodontics

Academic year: 2025/2026 II. Semester

Neptun code of the course: FOKOKFK357_5A

Course coordinator: Prof. János Vág DMD, PhD

Position: head of department, university professor

Workplace, contact:

Semmelweis University, Faculty of Dentistry,

Department of Restorative Dentistry and Endodontics,

1088 Budapest, Szentkirályi u. 47.

Phone: +36-1-317-1598

E-mail: helyreallito.fogaszat@semmelweis.hu

Course objectives and role within the Dental Curriculum:

Upon completing the subject, students gain increased confidence and independence in handling complex and challenging tasks in both Conservative Dentistry and Clinical Dentistry as they care for their patients. Students are improving their basic skills in dental assistance.

Location of instruction (lecture hall, seminar room, etc.):

Dental Clinical and Training Centre, Department of Restorative Dentistry and Endodontics

H-1088 Budapest, Szentkirályi street 47.

Competencies acquired upon successful completion of the course:

The provisions of EMMI Decree 18/2016.

Prerequisites and eligibility requirements for enrollment and completion, in the case of a multiple-semester course, is continuous enrollment ("course rollover") allowed, and if so, under what conditions:

- Prosthodontics IV.
- Restorative Dentistry and Endodontics IV.

Enrollment requirements: minimum and maximum number of students, and selection criteria:

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How to apply for the course:

In the Neptun system

Detailed course content[2]:

The subject consists of three practical hours per week without any lectures. Under the supervision of the practice leader, students work independently and focus extensively on restorative and endodontic dental care activities.

During each practice session, students perform various tasks, including patient examination, obtaining a medical and dental history, stomato-oncological screening, establishing diagnoses, creating treatment plans, routine application of isolation procedures, carrying out simple and complex cavity preparations and their subsequent restorations, root canal treatment for single or multiple rooted teeth, and final restorations using onlays or solo crowns. Additionally, students practice the revision of root canal fillings.

Related courses covering overlapping or interdisciplinary topics (including both compulsory and elective courses) with possible overlapping areas of the course curriculum:

Restorative Dentistry and Endodontics I.

Restorative Dentistry and Endodontics II.

Restorative Dentistry and Endodontics III.

Restorative Dentistry and Endodontics IV.

Clinical Dentistry I.

Clinical Dentistry II.

The application of artificial intelligence in teaching of the course:

The education is primarily based on the lectures, seminars, recommended textbooks and practical training materials. The student may use artificial intelligence during the education, but must consult with his/her practical supervisor about the authenticity of the information received.

Specific academic requirements for successful course completion[3]:

Students are required to arrive prepared for each practice. They should know what treatment they will perform on the scheduled patient. They need to be familiar with the theoretical background of the treatment and the steps involved in its practical implementation. In the absence of this knowledge, the instructor may refuse the unprepared student from carrying out patient treatment during the practice. The evaluation for that day's practice will be considered inadequate.

Attendance requirements and make-up policy:

Attendance at the practices is compulsory, and absences at any one practice may not exceed 25%

of the total number of practices. In the case of the practice scheduled on a national holiday, that practice will not be held and cannot be replaced. Consequently, the total number of practices in the particular semester decreased. Therefore, the 25% is calculated from the decreased number.

After three instances of arriving late by less than 15 minutes, it will be counted as one absence. On the other hand, if you arrive late to the practice by more than 15 minutes, it will be directly counted as an absence. It is important to note that missed practices cannot be made up, regardless of whether it was a late arrival or an absence. Additionally, in the case of an absence, there is no need to provide a certificate.

Methods of assessment during the study period[4]:

Students should be prepared for the practice. The practice leaders will monitor and assess their knowledge and work carried out on the practices at each stage.

Requirements for semester completion and signature:

A minimum attendance of 75% is required for all practices, with no absence exceeding 25% of the practices for any given title (please refer to **Attendance on practices and lectures, replacement in case of missed sessions)**.

For the signature of the semester, a sufficient level of continuous and consistent theoretical preparation in practice and a sufficient level of practical performance are required. The average grade of the theoretical part and the average grade of the practical part must reach the 2.0 grade separately.

By week 11, a photo-documented report of the student's work must be submitted to the practice leader.

Type of examination:

Final exam

Examination requirements[5]:

The final exam consists of three parts.

1. Students draw one from each of the three questions. Each question is evaluated by a mark (3 marks account for 20-20-20% of the final mark).
2. Students present three photo-documented clinical treatments of their works, which they had carried out during the five semesters of Restorative Dentistry and Endodontics, or during the two semesters of Clinical Dentistry, or the summer internship at the Department of Restorative Dentistry and Endodontics. The cases were supervised and approved by the students' supervisor. Each case is evaluated by a mark (3 marks account for 10-10-10 % of the final mark).

The three treatments to be presented are the following:

1. Multi-surface composite filling
2. a CAD/CAM inlay/onlay or crown
3. Completed root canal treatment of a single or multi-rooted tooth

3. The third component of the final exam is the analysis of an intraoral radiograph. The student must determine which teeth are visible, what diagnosis can be made, and what kind of treatment is required (mark accounts for 10% of the final mark).

If any part of the examination fails (does not reach 2.0), the final exam also fails.

Topics for final exam:

Questions A

1. Concept, localization, and progression of caries on the anatomical crown
2. Histology of caries (enamel, dentin, and root caries)
3. Manual and powered cutting equipment and instruments (micromotor, turbine, burs)
4. Isolation of teeth (methods and tools)
5. Classification of cavities by Black (principles of classification, cavity design, and nomenclature)
6. Rules and steps of cavity design for direct aesthetic restoration
7. Class I cavity preparation for a composite filling
8. Class II cavity preparation for a composite filling
9. Class III cavity preparation for a composite filling
10. Class IV cavity preparation for a composite filling. Treatment of crown fractures of anterior teeth
11. Class V cavity preparation and cavities prepared for cervical filling
12. The aim and type of the fillings. Required properties of filling materials. Classification of filling materials
13. Application of liners, bases, and temporary filling. Polishing, removal, safety/toxicology aspects of amalgam fillings
14. Glass-ionomer cement and other polymeric materials (composition, indication, and application)
15. Composites - materials science (composition, classification, properties)
16. Fundamental concept and clinical application of the adhesive technique
17. Matrices and matrix systems
18. Clinical technique for direct Class III and IV composite restorations
19. Clinical technique for direct Class I and V composite restorations

20. Clinical technique for direct Class II composite restorations

Questions B

1. Classification (inlay/onlay/overlay/endocrown/veneer/tabletop) and materials for indirect restorations
2. Clinical steps and cavity preparation for indirect restorations. Similarities and differences compared to the plastic fillings
3. Indications, contraindications, materials, and clinical steps for metal inlays
4. Indications, contraindications, materials, and clinical steps for indirect restorations for aesthetic (composite, ceramic, hybrid). Dome concept
5. Digital and analog impression techniques for indirect restorations. Indication and application of sulcus retraction
6. Chairside CAD/CAM technology. Basics of design and milling
7. Cementation of indirect aesthetic restorations (material science of adhesive cement, surface treatments of both the tooth and the restoration, clinical steps of cementation)
8. Patient admission and treatment plan (sequence of general rehabilitation and restorative and endodontic dental treatments)
9. Equipment in the dental office, ergonomics, four-handed treatment, infection control
10. Caries diagnostic tools
11. Indications, contraindications, and methods of tooth whitening. Possible side effects and their prevention
12. Endodontic treatment of accidentally damaged teeth
13. Restorative and endodontic treatment for patients requiring special care. Odontogenic focal infection
14. Surgical interventions in restorative dentistry and endodontics (crown lengthening, drainage, apicectomy, hemisection, bicuspidation, root amputation)
15. Aesthetic and functional restoration of root canal-treated teeth (post and core buildup, single crown, endocrown, indirect restorations)
16. Evaluation of endodontic outcome. Orthograde retreatment of failed root canal treatments (revision)

Questions C

1. History taking, patient examination, and treatment plan in endodontics
2. Tools for diagnosis in endodontics
3. Anatomy and histology of the pulp. Description of the pulp chamber
4. Anatomy of the root apex and periapical tissues
5. Pulpal and periapical diseases: classification and pathogenesis

6. Differential diagnosis of pulpal and periapical diseases. Therapy of pulpal diseases
7. Preventive endodontics: the importance of pulp protection. Vital pulp therapies
8. Pathophysiology, symptoms, diagnosis, and therapy of acute (symptomatic) and chronic (asymptomatic) apical periodontitis and condensing osteitis
9. Pathophysiology, symptoms, diagnosis, and therapy of acute and chronic apical abscess
10. Concept, purpose, indication, contraindication, and limitation of root canal therapy
11. Emergency procedures in endodontics
12. Endodontic hand instruments powered instruments in root canal treatment. Terminology, standards, and the method of use.
13. Access openings (trepanation) and pulp extirpation. Orifice opening and shaping
14. Importance and methods of working length determination. Apical stop/apical seal
16. Root canal preparation using the step-back technique
17. Microbiological aspects of endodontics. Purpose, protocol, and technique of root canal irrigation and local medication in endodontic treatment
17. Hand and rotary root canal preparation techniques (beyond the step-back)
18. Procedural errors during root canal preparation
19. Root canal obturation techniques (cold and warm guttapercha techniques)
20. Definitive root canal obturation using lateral condensation

Exam questions are also available on the Moodle interface.

Grading method and type[6], the option for grade offer and its conditions:

The semester signature is a prerequisite for applying for the final exam.

The grading for the final exam is a five-point scale. Theoretical items (three questions) make up 60% of the total exam mark, case reports make up 30%, and the evaluation of the X-ray image contributes 10% to the final exam grade. If any part of the exam fails, the whole exam does as well.

Examination registration procedure:

In the Neptun system

Rules for examination retake:

In the Neptun system, according to the current university study and exam regulations.

Recommended printed, electronic, and online study materials, textbooks, and references (include URLs for online materials):

1. Ritter AV, Boushell LW, Walter R: Sturdevant's Art and Science of Operative Dentistry, 7th ed. or higher, St. Louis, Mosby, 2018
2. Torabinejad M, Walton RE, Fouad AF: Endodontics. Principles and Practice, 5th ed.or higher, St.Louis, Missouri, Saunders/Elsevier, 2014

3. Hargreaves KM, Berman LH: Cohen's Pathways of the Pulp, 11th ed. or higher, St. Louis, Missouri, Mosby/Elsevier, 2015
Signature of course lecturer (course coordinator): Prof. János Vág DMD, PhD
Signature of the head of coordinating department: Prof. János Vág DMD, PhD
Date of submission: 2025.08.27.

Opinion of the Committee on Education and Credit Transfer:
Notes from the Dean's Office:
Signature of Dean:

[1] This section must be completed only if the course is offered in the given foreign language.
[2] Theoretical and practical instruction must be listed separately, broken down by hours (weeks) and numbered accordingly. Attachments are not permitted.
[3] E.g., fieldwork, case report analysis, conducting a survey, etc.
[4] E.g., homework, in-class presentations, midterm tests. Please specify topics and dates, as well as possibilities for make-up and retake.
[5] For a theoretical exam, please include the list of exam topics, for a practical exam, specify the scope and format of the examination.
[6] Description of how the theoretical and practical exams are weighted in the final grade. Description of midterm assessments contribute to the final grade.