Semmelweis University, Faculty of Dentistrye – single, long-cycle medical training - Undivided, one-tier training in dentistry
Name of the host institution (and any contributing institution):
Helyreállító Fogászati és Endodonciai Klinika

Name of subject in Hungarian: Restauratív fogászati propedeutika II
Name of subject in English: Restorative Dentistry, Pre-clinical II.
Name of subject in German: Zahnerhaltungskunde Propädeutik II

Credit value of the course: 4
Semester: 5th semester
(in which the subject is taught according to the curriculum)

Weekly hours	Lecture	Practice	Seminar
4.0	1.0	3.0	0.0

Semester hours	Lecture	Practice	Seminar
56.0	14.0	42.0	0.0

Type of course:
obligatory

Academic year:
2026/27

Language of instruction (for optional and elective subjects):
Angol

Course code:
FOKOKFK355_2A
(in the case of a new course, to be completed by the Dean’s Office, following approval)

Course coordinator name: Dr. Kerémi Beáta
Course coordinator location of work, telephone availability: Department of Restorative Dentistry and Endodontics; +36-1-317-1598
Course coordinator position: associate professor
Course coordinator Date and number of habilitation: 2024.05.28.; 09/2024.

Objectives of the course, and its place in the curriculum of the medical training program:

This subject establishes basic knowledge of Restorative Dentistry with a special focus on indirect restoration. The goal is to acquire theoretical and practical knowledge that can be used to treat patients in clinical practice.

During practice, the students become familiar with:

· the theoretical, practical steps of preparing inlays, onlays, overlays

· the use of the CAD/CAM systems

· the use of intraoral scanners

- the whole digital workflow of single restoration

Format of the course (lectures, group work, practical lessons, etc.):

1x45min lecture and 3x45min practice/week - hands-on practice, small-group instruction

---

Competencies acquired through completion of course:

Upon completing the subject, the student will learn the theoretical, practical, and technical steps of inlay/onlay restoration and chairside CAD/CAM system.

Prepares/gets ready for clinical patient care.

Course outcome (names and NEPTUN ID of related subjects):
FOKOKFK357_1A, FOKOKFK357_2A, FOKOKFK357_3A, FOKOKFK357_4A, FOKOKFK357_5A, FOSVKFK167_1A

Prerequisites for course registration and completion: (NEPTUN ID):

Restorative Dentistry, Pre-clinical I., Odontotechnology and Prosthodontics Pre-clinical II., Medical and Dental Physiology II.

In the case of multi-semester courses, position on the possibility of and conditions for concurrent registration:

concurrent registration not permitted

The number of students required to start the course (minimum, maximum), method of selecting participants:

compulsory course - in accordance with the current number of students

---

Detailed course syllabus (if the course can be divided into modules, please indicate): (Theoretical and practical instruction must be broken down into hours (weeks), numbered separately; names of instructors and lecturers must be listed, indicating guest lecturers/instructors. It cannot be attached separately! For guest lecturers, attachment of

CV is required in all cases!)

This subject includes one hour of theory and three hours of practice weekly.

During practice, the task is to prepare cavities for inlay/onlay and composite filling restorations. They learn how to use intraoral scanners, design inlay/onlay with the design software that is part of the CAD/CAM system, learn about the milling process, and how to cement inlay/onlay in the prepared cavity.

Students' knowledge is continuously monitored.

Themes of the lectures (week-by-week):

1. Classification (inlay/onlay/overlay/endocrown/veneer/tabletop) and materials for indirect restorations. Indications, contraindications, materials, and clinical steps for metal inlays

2. Aesthetic (composite, ceramic, hybrid) indirect restorations. Dome concept

3. Analog and digital impressions for single restorations. Indication and application of gingival retraction. Chairside CAD/CAM technology. Basics of design and milling.

4. Glass ionomer cement and other polymeric materials (composition, indication, and application)

5. Application of liner, base, and temporary fillings. Polishing, removal, and toxicology of amalgam fillings

6. Fundamental concepts of the adhesive technique

7. Composites - material science (composition, classification, properties)

8. Practical considerations for the clinical use of composites and adhesive technique

9. Materials and cementation of indirect aesthetic restorations (material science of restoration and adhesive cement, surface treatments of the tooth and the restoration, clinical steps of cementation)

10. The concept, localization, and progression of caries in the anatomical crown

11. Caries diagnostic tools

12. Cervical lesion and its complex treatment

13. Patient admission and treatment plan (sequence of general rehabilitation and restorative and endodontic dental treatments)

14. The order of clinical practices, a compilation of student's case presentations, basic knowledge of dental photography

The material of the practices (week-by-week – consultations; practices):

1. Instruments, matrix application; cavity preparation - Class 5 and Class 2 (repetition)

2. Basics of inlay making; cavity preparation - Class 5 and Class 2 cavity preparation for aesthetic inlay/onlay

3. Comparison of cavity preparation of metal and aesthetic inlays; Class 2 cavity preparation for aesthetic inlay/onlay

4. Preparation differences - for different types of fillings and inlays; Class 2 cavity preparation for aesthetic inlay/onlay

5. **Midterm 1: cavity preparation for indirect restorations, materials of inlays/onlays;** Class 2 cavity preparation for aesthetic inlay/onlay

6. Scanning of cavities prepared for inlays, the design process of inlay/onlay and milling process; making the temporary filling (glass ionomer and/or phosphate cement)

7. Treatment of crown fractures of anterior teeth; Class 3 and Class 4 cavities preparation for composite filling

8. Class 3 and Class 4 cavities preparation for composite filling

9. Composite filling in absolute isolation - Class III and IV cavities

10. Cementation of inlays; Composite filling in absolute isolation - Class III and IV cavities

11. **Midterm 2: Digital workflow and cementation of indirect restorations;** Composite filling in absolute isolation - Class II cavity

12. Equipment of the dental office; Composite filling in absolute isolation - Class II cavity

13. Infection control; Composite filling in absolute isolation - Class II cavity

14. Finishing, polishing; closing of the course

Other courses with overlapping topics (obligatory, optional, or elective courses) in interdisciplinary areas. To minimalize overlaps, topics should be coordinated. NEPTUN ID(s) of courses (to be provided):
FOKOKFK357_1A, FOKOKFK357_2A, FOKOKFK357_3A, FOKOKFK357_4A, FOKOKFK357_5A, FOKOKFK313_1A, FOKOFPK312_2A, FOSVKFK167_1A

Requirements for attendance, options for making up missed sessions, and method of absence justification:

The materials of lectures and practices are essential for completing the practical work and passing the exam.

Attendance at the practices is compulsory, and absences for any reason 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.

Assessment methods during semester (number, topics, and dates of midterms and reports, method of inclusion in the course grade, opportunities for make-up and improvement of marks):
(number, topics, and dates of midterms and reports, method of inclusion in the course grade, opportunities for make-up and improvement of marks)

Practices - general informations:

- The tasks completed during the practical work will be assessed at the end of each practice
- In specific weeks, there will be a special assessment of test drilling and test filling (weeks 2, 5, 8, 10, 13).
- 2 module closing tests on 5th and 11th weeks (midterms) - it is obligatory to write, only the unsuccessful midterm can be corrected

Grading of tests:
0-50% - (1) fail
51-62,5% - (2) satisfactory
63-75% - (3) average
76-87,5% - (4) good
88-100% - (5) excellent

The results of the theoretical and practical assessments count toward the end-of-semester grade.

Number and type of individual assignments to be completed, submission deadlines:

not relevant

Requirements for the successful completion of the course:

A minimum of 75% attendance is required at the practices, and absence may not exceed 25% of the practices regardless of the reason.

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. The theoretical part comprises the weekly test and the midterms. Each midterm must reach a 2.0 grade.Each exam preparations and exam fillings must individually achieve a grade of 2.0.

The type tasks indicated in Moodle (e.g., preparing a cavity for inlays/onlays, making a filling, etc.) are min. 75% of the type tasks must be completed. Completely missing a specific assignment/task will result in a refusal to sign the end-of-semester.

Type of assessment:
terminal examination

Exam requirements (list of topics, topics of the test exam, and the optional project topics accepted as an exam)

Artificial intelligence may not be used in any form during the exam. Students are responsible for any incorrect information obtained from artificial intelligence during their preparation at home.

The final exams comprise theoretical and practical parts with five partial marks. First part: correctly identifying an extracted human tooth (one partial mark), the instrument recognition&application (e.g., matrix placement) (one partial mark), and making rubber dam isolation (one partial mark) must also reach an average of 2.0, separately. Based on random generation, two questions should be chosen and answered (two partial marks). The grades given for each theoretical topic must separately reach grade 2.0. The final exam fails if any part of the examination fails (does not reach 2.0). The exam questions are available on the Moodle interface.

Theoretical topics for the final exam:

Questions A

1. The anatomy of the remaining teeth. Marking of teeth. Mühlreiter marks
2. Concept, localization, and progression of caries on the anatomical crown
3. Histology of caries (enamel, dentin, and root caries)
4. Manual and powered cutting equipment and instruments (micromotor, turbine, burs)
5. Isolation of teeth, methods, and tools
6. Classification of cavities by Black, the basis of classification. Preparation design, methods, and nomenclature
7. Rules and steps of cavity design for direct aesthetic restoration
8. Class I cavity preparation for a composite filling
9. Class II cavity preparation for a composite filling
10. Class III cavity preparation for a composite filling

11. Class IV cavity preparation for a composite filling. Treatment of crown fractures of anterior teeth.

12. Class V cavity preparation and cavities prepared for cervical filling

13. The aim and type of the fillings. Required properties of filling materials. Classification of filling materials.

14. Application of liners, bases, and temporary filling. Polishing, removal, and toxicology of amalgam fillings

15. Glass-ionomer cement and other polymeric materials (composition, indication, and application)

16. Composites - materials science (composition, classification, properties)

Questions B

1. Fundamental concepts of the adhesive technique

2. Clinical application of the adhesive technique

3. Matrices and matrix systems

4. Clinical technique for direct class III and IV composite restoration

5. Clinical technique for direct class I and V composite restoration

6. Clinical technique for direct class II composite restoration

7. Contouring, finishing, and polishing of fillings

8. Classification (inlay/onlay/overlay/endocrown/veneer/tabletop) and materials for indirect restorations

9. Clinical steps and cavity preparation for indirect restorations. Similarities and differences compared to the plastic fillings

10. Indications, contraindications, materials, and clinical steps for metal inlays

11. Indications, contraindications, materials, and clinical steps for indirect aesthetic restorations (composite, ceramic, hybrid). Dome concept

12. Digital and analog impressions for indirect restorations. Indication and application of gingival retraction.

13. Chairside CAD/CAM technology. Basics of design and milling

14. Cementation of indirect aesthetic restorations (material science of adhesive cement, surface

treatments of the tooth and the restoration, clinical steps of cementation)

15. Patient admission and treatment plan (sequence of general rehabilitation and restorative and endodontic dental treatments)

16. Equipment in the dental office, ergonomics, four-handed treatment, infection control

17. Caries diagnostic tools

Clear, specific minimum requirements for assessment. (The list of mandatory concepts, parameters, diagrams, calculations, and practical skills required to obtain a passing grade, as well as the criteria for the completion and evaluation of project assignments accepted as an exam.) A link published on the department's website referring to the minimum requirements of the course.

First part: correctly identifying an extracted human tooth (one partial mark), the instrument recognition&application (e.g., matrix placement) (one partial mark), and making rubber dam isolation (one partial mark) must also reach an average of 2.0, separately. Based on random generation, two questions should be chosen and answered (two partial marks).

Students must be familiar with the content of the teaching materials uploaded to the Moodle platform.

Method and type of grading (Share of theoretical and practical examinations in the overall evaluation. Inclusion of the results in the end-of-term assessment. Possibilities of and conditions for offered grades.): (Share of theoretical and practical examinations in the overall evaluation, Inclusion of the results in the end-of-term assessment, Possibilities of and conditions for offered grades)

The semester signature is a prerequisite for admission to the course.

The grading for the final exam is a five-point scale. Theoretical items (two questions) comprise 60% of the final exam mark. Tooth recognition makes up 15%. The recognition and the use of the instruments contribute 10%, and rubber dam isolation contribute 15% to the final exam. If any part of the exam fails, the whole exam does as well.

not possible

not possible

Artificial intelligence systems used in the teaching of the subject and the manner of their application

The course is primarily based on textbooks, lectures, seminars, and practical exercises. Students may use artificial intelligence (ChatGPT) during the course, but they must consult with their instructor regarding the reliability of the information obtained.

List of coursebooks, textbooks, study aids and literature facilitating the acquisition of knowledge to complete the course and included in the assessment, precisely indicating which requirement each item is related to (e.g., topic by topic) as well as a list of important technical and other applicable study aids; possibility of individual or group student consultation, if available:
Online resources:

Type	Mandatory
Title	Teaching materials uploaded to the Moodle site
Link	https://itc.semmelweis.hu/moodle/course/view.php?id

Printed resources:

Type	Recommended
Author	Ritter AV, Boushell LW, Walter R
Title	Sturdevant's Art and Science of Operative Dentistry 7th ed. or higher
Publisher	Mosby
Year of publication	2018

Signature of habilitated instructor (course coordinator) announcing the course:

Signature of the director of the host institution:

Date of submission: