# **COURSE SYLLABUS**

# Semmelweis University Faculty of Dentistry, Dentistry Name of the course: Restorative Dentistry and Endodontics V. Credit value: 3 Lessons (in hours in the whole semester): 36 from this, lectures: 0 practicals: 3 seminars: 0 Type of the course: compulsory obligatory elective elective Semester in which it is announced according to the curriculum: 10th Semester 2024/2025 Academic year - 2nd Semester – ascending system Frequency of announcement (per semester or year): per year The responsible educational and research organizational unit for teaching the subject: Department of Restorative Dentistry and Endodontics Academic year: 2024/2025 Academic year - 2nd Semester - ascending system Subject (Neptun) code: FOKOKFK357\_5A Lecturer of the course: Prof. János Vág DMD, PhD Academic position: clinical head, university professor **Contact:** Department of Restorative Dentistry and Endodontics, H-1088 Budapest, Szentkirályi street 47. **Phone:** +36-1-317-1598 E-mail: konzervalo.fogaszat@dent.semmelweis-univ.hu The goals and place of the course in regards to the education of dental students: 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 the course (address of lecture hall, seminar room etc.): Dental Clinical and Training Centre, Department of Restorative Dentistry and Endodontics H-1088 Budapest, Szentkirályi street 47. Competences acquired by completion of the course: The provisions of EMMI Decree 18/2016. Pre-study requirements and prerequisites of course registration and completion, in case of a multisemester subject, the standpoint of the educational-research unit on the concurrent subject registration and on the requirements of permission there of: Prosthodontics IV. Restorative Dentistry and Endodontics IV.

Number of students required for announcement of course (*min., max.*), method of selection: ---Method of course registration: In the Neptun system

**Detailed course/lecture description<sup>1</sup>:** (to facilitate credit recognition in other institutions)

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.

Courses (compulsory and obligatory elective) which in part or entirely overlap the topics of above course:

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.

# Special academic work required for completion of the course<sup>2</sup>:

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 on practices and lectures, replacement in case of missed sessions:

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.

Method of checking acquired knowledge during the study period<sup>3</sup>:

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 of an accepted semester** (*signature of the lecturer*):

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 the exam: Final exam

## **Requirements of the exam<sup>3</sup>:**

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's supervisor. Each case is evaluated by a mark (the three 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 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 what teeth are visible, what diagnosis can be made, and what treatment is required (1 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.

Exam questions are available on the Moodle interface.

# 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 (the basis of classification, preparation 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, and toxicology 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 restoration
- 19. Clinical technique for direct class I and V composite restoration
- 20. Clinical technique for direct class II composite restoration

#### **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 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
- 15. Preparation of the root canal using the step-back technique
- 16. 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)

#### Grading of courses<sup>4</sup>. The possibility and requirements of an offered grade:

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.

Exam registration: In the Neptun system

#### **Rules of repeating exams:**

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

#### List of textbooks, lecture notes and recommended textbooks, online material:

- 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
- Hargreaves KM, Berman LH: Cohen's Pathways of the Pulp, 11th ed. or higher, St. Louis, Missouri, Mosby/Elsevier, 2015

Signature of course lecturer:

## Prof. János Vág DMD, PhD

Signature of head of department:

#### Prof. János Vág DMD, PhD

Date of submission:

**Opinion of OKB:** 

Notes from the Dean's Office:

Signature of Dean:

<sup>&</sup>lt;sup>1</sup> Detailed and numbered for each week of theoretical and practical lessons one by one. In an annex, cannot be attached appendix!

 $<sup>^{2}</sup>$  Eg. homework, report, midterm exam etc. Topics, dates, method of retake and replacement

 $<sup>^3</sup>$  List of topics in case of theoretical exam, the matic and method in case of practical exam

<sup>&</sup>lt;sup>4</sup> Method of inclusion of theoretical and practical exams. Method of inclusion of midterm assessments.