COURSE SYLLABUS

Semmelweis University, Faculty of Dentistry,

Doctor of Medicine in Dentistry Program

Name of the course in Hungarian: A Biomimetikus Fogorvoslás Alapjai

In English[1]: The Basics of Biomimetic Dentistry

In German[1]: Grundlagen der biomimetischen Zahnheilkunde

Credits: 1

Number of hours: 14, of which lectures: 0, practicals: 0, seminars: 14

Course type: compulsory compulsory elective elective

Semester in which the course is offered, according to the curriculum: 9th semester

Frequency of announcement (*per semester or year*): per year

The educational research unit teaching the course:

Department of Restorative Dentistry and Endodontics

Academic year: 2025 / 2026 Autumn semester

Neptun code of the course: FOSVKFK373_1A

Course coordinator: János VÁG DMD, PhD, DSc

Position: full professor, head of department

Workplace, contact: Department of Restorative Dentistry and Endodontics

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Lecturer: András Forster DMD, PhD

Workplace, contact: Urban Regeneration Institute Budapest,

+36-70-317-4503

Course objectives and role within the Dental Curriculum:

Introduction to the clinical and material science criteria and methods of biomimetic dentistry.

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

Dental Clinical and Training Centre, Pre-clinical labs; H-1088 Budapest, Szentkirályi street 47.

Competencies acquired upon successful completion of the course:

Upon successful completion of the course, the student will acquire foundational knowledge of modern cariology, methods to achieve optimal adhesion, the requirements for biomimetic material selection, and biomechanically based clinical decision-making. This will enable the student to independently continue expanding their biomimetic-oriented knowledge after graduation.

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:

Restorative Dentistry and Endodontics III.

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

Minimum 15 – maximum 40 students, voluntary participation, enrolled in order of application.

How to apply for the course: Via Neptun system.

Detailed course content[2]:

I. Fundamentals of Biomimetic Dentistry

- Histological and anatomical knowledge
- Biomechanical principles
- Caries diagnostics
- Selective caries removal
- Hierarchy of adhesion
- High-level adhesion to all dental tissues
- Immediate Dentine Sealing (IDS)
- Material science and polymerization dynamics of composites
- Stress-reduction techniques
- Fiber reinforcement
- Material science of dentin restoration
- Deep Margin Elevation (DME)
- Clinical method for dentin restoration – the biobase
- Enamel restoration using direct technique – SRDC
- Enamel restoration using indirect technique – material selection
- Enamel restoration using indirect technique – impression / scan
- Enamel restoration using indirect technique – cementation
- Occlusion

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

The course content builds upon the foundations of Restorative Dentistry Propedeutics, furthermore students can integrate the knowledge acquired during this course into their studies in Restorative Dentistry, Endodontics, and Clinical Dentistry.

The application of artificial intelligence in teaching of the course:

The curriculum is primarily based on the textbook, lectures, seminars, and practical sessions. During the course, students may use artificial intelligence tools (e.g., ChatGPT), but they must verify the reliability of the information obtained with their supervising instructor.

Specific academic requirements for successful course completion[3]: -

Attendance requirements and make-up policy:

Attendance at seminars is mandatory. Absences may under no circumstances exceed 25% of the seminar sessions. There is no possibility to make up missed sessions. Absences do not need to be justified.

Methods of assessment during the study period[4]: -

Requirements for semester completion and signature:

Obtaining the course signature requires attendance at a minimum of 75% of the seminars; under no circumstances may absences exceed 25%.

Type of examination: signature

Examination requirements[5]: -

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

Examination registration procedure: -

Rules for examination retake: -

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. Magne, Belser. Bonded Porcelain Restorations in the Anterior Dentition. Quintessence Publishing, 2002
3. Magne, Belser. Biomimetic Restorative Dentistry. Quintessence Publishing, 2022

Signature of course lecturer (course coordinator):

Prof. Dr. János Vág

Signature of the head of coordinating department:

Prof. Dr. János Vág

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.