REQUIREMENTS

Semmelweis University Faculty of Dentistry
Department of Conservative Dentistry

Name of the course: ENDODONTICS, PRE-CLINICAL
Credit value: 3
Lessons *(in hours)*:56 lectures: 1 practices: 3 seminars: 0
Type of the course: compulsory obligatory elective elective
Frequency of announcement *(per semester or year)*: per year (6th Semester)

Academic year: 2022-2023 2nd Semester – in an ascending system

Subject code[1]:

Lecturer of the course: Beáta Kerémi DMD, PhD

Contact: SE, Department of Conservative Dentistry, 1088 Budapest, Szentkirályi u. 47.
Phone: +361-317-1598
Function: associate professor

The goals of the course in point of view of the education:
This subject serves as the establishment of basic knowledge of Endodontics. The goal is to acquire a level of theoretical and practical knowledge that can be used to treat patients in clinical practice.

During the course of their studies, students will acquire:

- the anatomy of roots, root canals and periapical space
- the theoretical basics of endodontics
- the symptoms, diagnosis and therapy of pulpal diseases and their consequences
- Access openings of the pulp chamber, root canal preparation and obturation on plastic endodontic practice blocks and extracted human teeth

Location of the course *(address of lecture hall, seminar room etc.)*:
SE FOK Oktatási Centrum, Preclinical laboratory, 1088 Budapest, Szentkirályi u. 47.

Competences acquired by completion of the course:
Upon successful completion of the course, the student will know the process, conditions, diagnostics and therapy of endodontic diseases; will know and use the instruments, tools and machines necessary for endodontic treatment, will learn and apply the rules of root canal treatment, and will be able to treat teeth endodontically and then restore them.

Pre-study requirements and prerequisites of course registration and completion:

- Restorative Dentistry, Pre-clinical II
- Odontotechnology and Prosthodontics, Pre-clinical III
- Preventive Dentistry

Number of students required for announcement of course *(min., max.)*: -

Method of course registration: via the Neptun system

Detailed course/lecture description[2]: *(to facilitate credit recognition in other institutions)*

The subject is taught with one theoretical (lecture) and three practical lessons per week.

Students will practice access cavity preparation (trepanation), root canal preparation and root canal obturation on endodontic plastic blocks and extracted human teeth. Students' knowledge is continuously monitored.

Themes of the lectures:

1. Pulpal and periapical pathology
2. Concept, purpose, indication, contraindication, and limitation of root canal therapy. Emergency procedures in endodontics
3. Microbiological aspects of endodontics. Antiseptic solutions, drugs and their use in root canal treatment.
4. Preventive endodontics: the importance of pulp protection. Endodontic diagnostics
5. Anatomy of the root apex. Preoperative radiography. Determination of working length by radiographic method and electronic measuring instruments.
6. Procedural errors during root canal preparation. Hand and rotary root canal preparation techniques (beyond the step-back).
7. Evaluation of endodontic outcome. The revision of root canal treatment
8. Root canal obturation techniques (cold and warm gutta-percha techniques)
9. Relationship between endodontic and periodontal lesion, vertical root fracture
10. Aesthetic and functional restoration of root canal treated teeth (post and core buildup, single crown, endocrown, indirect restorations)
11. Endodontic treatment of accidentally damaged teeth
12. Surgical interventions in restorative dentistry and endodontics (crown lengthening, drainage, apicectomy, hemisection, bicuspidation, amputation)
13. Restorative and endodontic treatment for patients requiring special care. Odontogenic focal infection
14. Indications, contraindications and methods of tooth whitening. Possible side effects and their prevention.

The material of the practices:

1. Tooth anatomy – anatomy of the root, root canals and the periapical space
2. Instruments in endodontic
3. Access cavity preparation (trepanation)
4. Determination of working length
5. **Mid-term test 1 – Anatomy, instruments, initial steps of root canal treatment**
6. Shaping of root canal in plastic endodontic block
7. Introduction to step-back technique
8. Miscellaneous root canal preparation techniques
9. Root canal obturation in plastic endodontic block
10. Lateral condensation technique
11. Miscellaneous root canal obturation techniques
12. **Mid-term test 2 – Root canal shaping and obturation**
13. Role of radiology in endodontics
14. Evaluation of root canal obturation

Courses *(obligatory and elective)* which in part or entirely overlap the topics of above course:
Successful completion of this course will lay the foundation for the Restorative dentistry and endodontics course and later, in Year V, the Clinical dentistry course, which will provide the student with a framework for patient management, so that the knowledge acquired here can be repeated and effectively extended.

Special academic work required for completion of the course[3]:-

Attendance on practices and lectures, replacement in case of missed sessions:
Attendance at lectures is not obligatory, but 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 at any one practice may not exceed 25% of the total number of practices. Arriving late to the practices less than 15 minutes results in one absence after three times. Arriving late to the practices of more than 15 minutes counts as an absence. There is no possibility to make up a missed practice. No certificate is necessary in case of absence.

Method of checking acquired knowledge during the study period[4]:
Students must arrive in the practice with knowledge of the material related to the scheduled program available on Moodle website. During the semester, small tests take place weekly. T**wo midterms will be given, one on the 5th week (anatomy, instruments, initial steps of root canal treatment) and the second on the 12th week (root canal shaping and obturation)**. The topic includes the material of the lectures and practices. If a student does not pass the exam the first time, the exam can be retaken in two weeks. A maximum of two additional attempts for the retake will be provided. It will be assessed in accordance with the procedure laid down in the Study and Examination Regulations of Semmelweis University.
The work carried out on the practices will be monitored and assessed by the practice leaders at each stage. The results of the evaluations are included in the semester rating.

Requirements of an accepted semester *(signature of the lecturer)*:
A minimum of 75% attendance is required at the practices, and absence may not exceed 25% of the practices regardless of the reason.
The signature of the semester, a sufficient level of continuous and consistent theoretical preparation, the passed demonstration, 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 separately reach the 2.0-grade. The midterm tests must individually reach a level of at least 2.0.

Type of the exam: *semifinal exam** - counted in the average, similarly to final exam

Requirements of the exam[5]:
The grades given for each theoretical topic must separately reach grade 2.0. The proper identification of an extracted human tooth and instruments recognition must also reach separately the grade 2.0.
If any part of the examination fails (does not reach 2.0), the final exam also fails.
Exam questions are available on the website and on the Moodle interface.

Topics for final exam:
Questions A
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 and periapical tissues
5. Pulpal and periapical diseases: diagnostic terminology, pathogenesis and microbiology
6. Differential diagnosis of pulpal and periapical diseases
7. Pathophysiology, symptoms, diagnosis and therapy of pulpal diseases
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. Preventive endodontics: the importance of pulp protection. Vital pulp therapies.
12. Emergency procedures in endodontics
13. Aesthetic and functional restoration of root canal treated teeth (post and core buildup, single crown, endocrown, indirect restorations)
14. Endodontic treatment of accidentally damaged teeth
15. Restorative and endodontic treatment for patients requiring special care. Odontogenic focal infection

Questions B

1. Manual and powered instruments in root canal treatment .
2. Microbiological aspects of endodontics. Use of disinfectant solutions and chemicals in root canal treatment.
3. Access openings (trepanation) and pulp extirpation
4. Importance and methods of working length determination
5. Endodontic hand instruments techniques. Orifice opening and shaping
6. Preparation of the root canal using the step-back technique. Apical stop/apical seal.
7. Purpose, protocol, and technique of root canal irrigation and local medication in endodontic treatment
8. Hand and rotary root canal preparation techniques (beyond the step-back)
9. Procedural errors during root canal preparation
10. Root canal obturation techniques (cold and warm guttapercha techniques)
11. Lateral condensation/compaction.
12. Evaluation of endodontic outcome. The revision of root canal treatment
13. Orthograde retreatment of failed root canal treatments.
14. Indications, contraindications and methods of tooth whitening. Possible side effects and their prevention.
15. Surgical interventions in restorative dentistry and endodontics (crown lengthening, drainage, apicectomy, hemisection, bicuspidation, amputation).

Grading of courses[6]:

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) make up 60% of the final exam mark, tooth recognition makes up 20%, the endodontic tools recognition contributes 20% to the final exam. If any part of the exam fails, the whole exam does as well.

Exam registration:

In Neptun system

Rules of repeating exams:

In Neptun system based on the current university Study and Exam Regulations.

List of textbooks, lecture notes and recommended textbooks: 1. Torabinejad M, Walton RE, Fouad AF: Endodontics. Principles and Practice. 5th ed. St.Louis, Missouri, Saunders/Elsevier 2014 2. Hargreaves KM, Berman LH: Cohen's Pathways of the Pulp. 11th ed. St. Louis, Missouri, Mosby/Elsevier 2015
Signature of course lecturer: **Beáta Kerémi DMD, PhD**
Signature of head of department: **János Vág DMD, PhD**
Date of submission:
Opinion of OKB:
Notes from the Dean's Office:
Signature of Dean:

[1] Filled out by the Dean's Office following approval
[2] Detailed and numbered for each week of theoretical and practical lessons one by one, indicating the names of lecturers and instructors
[3] Eg. field practice, medical chart analysis, survey conducting, etc.
[4] Eg. homework, report, midterm exam etc. Topics, dates, method of retake and replacement.
[5] List of topics in case of theoretical exam, thematic and method in case of practical exam.
[6] Method of inclusion of theoretical and practical exams. Method of inclusion of midterm assessments.