

Semmelweis University, Faculty of Dentistry - undivided, one-tier training in dentistry

Name of the host institution (and any contributing institution):

Fogpótlástani Klinika

Name of subject in Hungarian: Gnathology

Name of subject in English: Gnathology

Name of subject in German: Gnathology

Credit value of the course: 3

Semester: 7th semester

(in which the subject is taught according to the curriculum)

Weekly hours	Lecture	Practice	Seminar
3.0	0.0	2.0	1.0

Semester hours	Lecture	Practice	Seminar
42.0	0.0	28.0	14.0

Type of course:

obligatory

Academic year:

2026/27

Language of instruction (for optional and elective subjects):

Angol

Course code:

FOKOFPK431_1A

(in the case of a new course, to be completed by the Dean's Office, following approval)

Course coordinator name: Dr. Hermann Péter

Course coordinator location of work, telephone availability: Department of Prosthodontics, 338-4380

Course coordinator position: professor, director

Course coordinator Date and number of habilitation: 297, 2010.06.07.

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

Teaching the relationship between all the components of the masticatory system in normal function, dysfunction, parafunction, including the morphological and functional features of contacting surfaces of opposing teeth and restorations. Diagnosis and treatment of occlusal trauma and dysfunction, and other temporomandibular joint and muscle function disorders.

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

Lessons (*in hours in the whole semester*): 3 from this, lectures: 0 practicals: 2 x 45 min

seminars: 1 x 45 min

Competencies acquired through completion of course:

Teaching the relationship between all the components of the masticatory system in normal function, dysfunction, parafunction, including the morphological and functional features of contacting surfaces of opposing teeth and restorations. Diagnosis and treatment of occlusal trauma and dysfunction, and other temporomandibular joint and muscle function disorders.

Course outcome (names and NEPTUN ID of related subjects):

FOKOFSI437_1A

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

Restorative Dentistry and Endodontics I., Prosthodontics I., Oral Diagnostics

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

Concurrent subject registration is not possible.

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

In accordance with the number of 4th year 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!)

The theme of the seminars:

1. Introduction to the subject, introductory seminar

2. Online moodle learning module: Introduction into the Anatomy and Physiology of the Stomatognathic System. Mandibular Positions: Rest Position, ICP, CR, CO
3. Seminar material which requires personal attendance: Introduction into the Anatomy and Physiology of the Stomatognathic System. Mandibular Positions: Rest Position, ICP, CR, CO
4. Online moodle learning module: Mandibular Movements: Rotation and Translation Opening and Closing, Protrusion-retrusion, Excentric Movements and Border Movements
5. Seminar material which requires personal attendance: Mandibular Movements: Rotation and Translation Opening and Closing, Protrusion-retrusion, Excentric Movements and Border Movements
6. Online moodle learning module: Simple Hinge, Average Value Articulators, Fully Adjustable Articulators
Mounting with the Bonwill Triangle. Individual mounting, the Use of Face-bow.
7. Seminar material which requires personal attendance: Simple Hinge, Average Value Articulators, Fully Adjustable Articulators
Mounting with the Bonwill Triangle. Individual mounting, the Use of Face-bow.
8. Online moodle learning module: Registration of Maxillomandibular relationships
9. Seminar material which requires personal attendance: Registration of Maxillomandibular relationships
10. Online moodle learning module: Adjustment of the Articulator.
11. Seminar material which requires personal attendance: Adjustment of the Articulator
12. Online moodle learning module: Gnatological Aspects in the Manufacturing of Prosthetic Appliances. Axio-graphy, Digital Analysis of Movements and the Arcus Digma System.
Temporomandibular dysfunction, orofacial pain
13. Seminar material which requires personal attendance: Gnatological Aspects in the Manufacturing of Prosthetic Appliances. Axio-graphy, Digital Analysis of Movements and the Arcus Digma System. Temporomandibular dysfunction, orofacial pain
14. Consultation

Practices:

1. Impression taking in pairs
2. Waxing up the occlusal surface on molar and premolar teeth
3. Waxing up the occlusal surface on molar and premolar teeth
4. Blended Learning

5. Examination of temporomandibular joint movements
6. Examination of the temporomandibular joint in patients without TMD
7. Setting up the facebow
8. Mounting of the upper cast into the articulator
9. Mounting of the lower cast into the articulator
10. Programming of articulators
11. Arcus Digma
12. Blended Learning
13. Blended Learning
14. Consultation

Other courses with overlapping topics (obligatory, optional, or elective courses) in interdisciplinary areas. To minimize overlaps, topics should be coordinated. NEPTUN ID(s) of courses (to be provided):

FOKOFPK364_1A, FOKOFPK365_1A, FOKOFPK365_2A, FOKOFPK365_3A, FOKOFPK366_1A, FOKOFPK366_2A, FOKOFPK366_3A, FOKOFPK366_4A, FOKOFPK366_5A, FOKOKFK313_1A, FOKOFPK312_2A

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

Attendance at seminars requiring personal attendance and the weekly practices is compulsory. Absences from any title, even with a doctor's certificate, cannot exceed 25% of the number of seminars requiring personal attendance/ weekly practices.

No more than a 25% of the practices are allowed to be missed for any reason - not even with a doctor's note - otherwise the semester will not be accepted. Doctor's notes can only be accepted after an individual evaluation. The medical notes will be sent back to the supervisory section of the issuing medical institutions for verification.

If there are 6 seminars requiring personal attendance per semester, the maximum number of absences from seminars requiring personal attendance is 1.

If there are 7 seminars requiring personal attendance per semester, the maximum number of absences from seminars requiring personal attendance is 2.

A student is considered to be late from the practices if he/she arrives no more than 15 minutes later than the time set by the timetable. These late arrivals are marked in the attendance sheet and if someone is late three times within a semester, it will be considered an absence. However, if someone is more than 15 minutes late from the practice, it will be already registered as an absence,

but the student will be allowed to attend the practice.

The use of cell phones during the practices is forbidden. (Unless the patient is photographed.) If the student uses his / her mobile phone despite the warning of his / her instructor, he / she will be not allowed to continue the practice and will have to leave the room immediately. This is considered as an absence, which is included in the number of absences allowed during the semester. During the practices, students can use tablets, notebooks, and small laptops to take notes.

There is no possibility to replace the seminars and the practices.

Students must arrive for the lectures on time, otherwise they will disturb the lecturer and the audience. No extra seminars will be provided for missed sessions.

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)

6 topics per semester are covered in the seminars. The seminars are taught in a blended learning format. 50% of the seminars are online, in weakly rotation, the other 50% is in the form of small group (max. 25-30 participants) classroom training requiring personal attendance.

The online learning module always precedes the personal seminar within the same subject area. The teaching material corresponding to the topics of the seminars is available online in moodle platform.

The course material is assessed and checked during the six two-week seminar blocks using a mobile phone application (Voovo). During each block, groups of questions are opened 3-5 times, each time containing 8-15 questions. These questions may reappear throughout the block; incorrectly answered questions are repeated more frequently by the app. Once a question is answered correctly, the previous incorrect attempt will not reduce the final consistency score.

However, the Voovo application also contains a "Knowledge Score", which measures the proportion of correct versus incorrect answers. If this score drops below a critical threshold, students will not be eligible to receive the highest marks—even if their consistency score remains high. As a result, each grade level is defined not only by consistency, but also by a minimum required level of knowledge.

The application sends a push notification to the user's device whenever a new question group becomes available. Until the questions are answered, students also receive daily reminder notifications. Once the two-week block expires, it is no longer possible to answer the questions.

Scoring and Conversion Formula

Student performance is measured through an average percentage result recorded in the Voovo app (Consistency Score). This semester average is converted into a partial seminar grade using the following formula:

Grade Consistency Score Minimum Knowledge Score

- 1 0% – 49% min. 0%
- 2 50% – 63% min. 40%
- 3 64% – 76% min. 50%
- 4 77% – 89% min. 60%
- 5 90% – 100% min. 65%

The results obtained in the seminars (based on the results achieved in the Voovo application) account for 50% of the end-of-semester result, in addition to the partial result obtained in the practical training, which accounts for the practical assessment of the semester.

Impact on Final Examination

Students whose average scores in the Voovo application (average of Voovo performance over several semesters) are within the top 5 percentage of their class, get the score of 5 (excellent) for one item they have chosen from the drawn ones during the kollokvium.

Practice grade:

During the semester, practical work is assessed by evaluating the waxing of one premolar and one molar tooth (grade 1-5, time spent: 4x45 minutes) and the activity shown during the practical sessions, with at least 50% completion required for a pass.

At the end of the semester, the student's overall performance will be evaluated on a percentage basis according to the partial grades for each practical work phase and their activity during the practicals.

The requirement for passing the semester is a minimum of 50% in the combined practical and seminar performance.

If the end-of-semester result is below 50%, the department will refuse the signature.

The assessment will be graded as "fail" if the number of absences from seminars/practical work exceeds the permitted 25%.

During the semester, three practical sessions will be held to prepare for the end-of-semester exam. Students who receive the highest total score for their practical activities, wax application exercises, developed topics, and test results (up to a maximum of 30% of the class) may declare one of the exam questions as passed with distinction.

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

Describe the position of the condyle and the relationship between the upper and lower jaws in the following positions: Resting position, ICP, centric relation, centric occlusion, RCP. You can use any technique (traditional drawing, digital drawing, film, plasticine, lego, etc.) that you think best shows your colleagues the relationship between different positions. Get creative!

Requirements for the successful completion of the course:

Attendance at seminars requiring personal attendance and attendance at practices is compulsory. No more than 25%-25% of the practices and the seminars requiring personal attendance are allowed to be missed for any reason – not even with a doctor's note – otherwise the semester will not be

accepted.

If there are 6 seminars requiring personal attendance per semester, the maximum number of absences from seminars requiring personal attendance is 1.

If there are 7 seminars requiring personal attendance per semester, the maximum number of absences from seminars requiring personal attendance is 2.

In case of absence is above this number, the semester will not be signed by the faculty, which means - according to the current Studies and Examination Regulation (TVSZ)- that the student can not apply for the exam.

In case of an unsatisfactory final mark, the signature at the end of the semester will be refused.

Type of assessment:

end term examination

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

Raised kollokvium (1 semester):. The exam is a review of the semester's course material according to the list of items available on the on the clinic website and moodle.

Students whose average scores in the Voovo application (average of Voovo performance over several semesters) are within the top 5 percentege of their class, get the score of 5 (excellent) for one item they have choosen from the drawn ones during the kollokvium.

The use of artificial intelligence is not allowed during the exam.

Raised kollokvium. Theoretical exam.(1-5 marks).

Failure to pass any part of the examination will result in a fail mark.

The use of artificial intelligence is not allowed during the exam.

1. Gnathology: definition, fields 2. Components of the stomatognathic system 3. Measurements points and reference planes on the skull and their clinical significance 4. Functional anatomy of the temporomandibular joint 5. Specified positions of the mandible: rest position 6. Specified positions of the mandible: intercuspapal position 7. Specified positions of the mandible: centric relation 8 Specified positions of the mandible: centric occlusion 9. Retruded contact position and its clinical significance. RCP-ICP shift 10. Basic movements of the temporomandibular joint: rotation 11. Basic movements of the temporomandibular joint: translation 12. Joint and muscle function during opening and closing movements 13. Joint and muscle function during protrusion and retrusion of the mandible 14. Joint and muscle function during laterotrusion of the mandible 15. Boundary movements of the mandible: sagittal, horizontal and frontal Posselt diagram 16. Significance and methods for registering the jaw relations 17. Significance and methods for determining the jaw relations 18. Geometric characteristics of the dental arches: description and significance 19. Occlusal anatomy of the molars: description and gnathological aspects 20. Cusp - fossa and cusp - marginal ridge contacts 21. Natural occlusion: occlusal contacts in natural dentition 22. Articulation in natural dentition. Canine guidance, group function, guidance 23. Clinical examination of the

stomatognathic system – screening 24. Clinical examination of the stomatognathic system – in temporomandibular dysfunction (TMD) 25. Structure and use of hinged occluders. For which purpose shall we use them? 26. Types of articulators 27. Structure of mean-value articulators and their use (when, how) 28. Structure of semi-adjustable articulators and their use (when, how) 29. Structure of fully adjustable articulators and their use (when, how) 30. Objective, structure and use of face-bow 31. Types of face-bows: advantages and disadvantages 32. Methods of mounting the articulator: mean-value mounting according to Bonwill triangle 33. Methods of mounting the articulator: individual mounting 34. Programming a semi-adjustable articulator with positional bites 35. Programming a semi-adjustable articulator with digital axiograph 36. Concept of temporomandibular disorders 37. Possible causes of orofacial pain

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.

6 topics per semester are covered in the seminars. The seminars are taught in a blended learning format. 50% of the seminars are online, in weakly rotation, the other 50% is in the form of small group (max. 25-30 participants) classroom training requiring personal attendance.

The online learning module always precedes the personal seminar within the same subject area. The teaching material corresponding to the topics of the seminars is available online in moodle platform.

The course material is assessed and checked during the six two-week seminar blocks using a mobile phone application (Voovo). During each block, groups of questions are opened 3-5 times, each time containing 8-15 questions. These questions may reappear throughout the block; incorrectly answered questions are repeated more frequently by the app. Once a question is answered correctly, the previous incorrect attempt will not reduce the final consistency score.

However, the Voovo application also contains a “Knowledge Score”, which measures the proportion of correct versus incorrect answers. If this score drops below a critical threshold, students will not be eligible to receive the highest marks—even if their consistency score remains high. As a result, each grade level is defined not only by consistency, but also by a minimum required level of knowledge.

The application sends a push notification to the user’s device whenever a new question group becomes available. Until the questions are answered, students also receive daily reminder notifications. Once the two-week block expires, it is no longer possible to answer the questions.

Scoring and Conversion Formula

Student performance is measured through an average percentage result recorded in the Voovo app (Consistency Score). This semester average is converted into a partial seminar grade using the following formula:

Grade	Consistency Score	Minimum Knowledge Score
1	0% – 49%	min. 0%
2	50% – 63%	min. 40%
3	64% – 76%	min. 50%
4	77% – 89%	min. 60%
5	90% – 100%	min. 65%

The results obtained in the seminars (based on the results achieved in the Voovo application) account for 50% of the end-of-semester result, in addition to the partial result obtained in the practical training, which accounts for the practical assessment of the semester.

Impact on Final Examination

Students whose average scores in the Voovo application (average of Voovo performance over several semesters) are within the top 5 percentage of their class, get the score of 5 (excellent) for one item they have chosen from the drawn ones during the kollokvium.

Practice grade:

During the semester, practical work is assessed by evaluating the waxing of one premolar and one molar tooth (grade 1-5, time spent: 4x45 minutes) and the activity shown during the practical sessions, with at least 50% completion required for a pass.

At the end of the semester, the student's overall performance will be evaluated on a percentage basis according to the partial grades for each practical work phase and their activity during the practicals.

The requirement for passing the semester is a minimum of 50% in the combined practical and seminar performance.

If the end-of-semester result is below 50%, the department will refuse the signature.

The assessment will be graded as "fail" if the number of absences from seminars/practical work exceeds the permitted 25%.

During the semester, three practical sessions will be held to prepare for the end-of-semester exam. Students who receive the highest total score for their practical activities, wax application exercises, developed topics, and test results (up to a maximum of 30% of the class) may declare one of the exam questions as passed with distinction.

If a student is repeatedly unprepared for the practical or theoretical work, or his/her practical work is not satisfactory, he/she will get an "unsatisfactory" grade and will fail the class for that semester. The minimal practical „pensum“ will be announced on the first practice by the supervisor. Unprepared students may participate in the practice but **will not be allowed to treat**.

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)

During the semester, three practical exercises are held to prepare for the end-of-semester exam. Students who receive the highest overall score for their practical activities, wax application exercises, developed topics, and test results (up to a maximum of 30% of the class) may declare one of the exam questions as passed with note 5.

Raised kollokvium: oral examination

The kollokvium is graded on a scale of 1-5. Oral examination based on theoretical questions.

No offered grade.

Raised kollokvium (1 semester):. The exam is a review of the semester's course material according to the list of items available on the on the clinic website and moodle.

Students whose average scores in the Voovo application (average of Voovo performance over several semesters) are within the top 5 percentege of their class, get the score of 5 (excellent) for one item they have choosen from the drawn ones during the kollokvium.

The use of artificial intelligence is not allowed during the exam.

6 topics per semester are covered in the seminars. The seminars are taught in a blended learning format. 50% of the seminars are online, in weakly rotation, the other 50% is in the form of small group (max. 25-30 participants) classroom training requiring personal attendance.

The online learning module always precedes the personal seminar within the same subject area. The teaching material corresponding to the topics of the seminars is available online in moodle platform.

The course material is assessed and checked during the six two-week seminar blocks using a mobile phone application (Voovo). During each block, groups of questions are opened 3-5 times, each time containing 8-15 questions. These questions may reappear throughout the block; incorrectly answered questions are repeated more frequently by the app. Once a question is answered correctly, the previous incorrect attempt will not reduce the final consistency score.

However, the Voovo application also contains a "Knowledge Score", which measures the proportion of correct versus incorrect answers. If this score drops below a critical threshold, students will not be eligible to receive the highest marks—even if their consistency score remains high. As a result, each grade level is defined not only by consistency, but also by a minimum required level of knowledge.

The application sends a push notification to the user's device whenever a new question group becomes available. Until the questions are answered, students also receive daily reminder notifications. Once the two-week block expires, it is no longer possible to answer the questions.

Scoring and Conversion Formula

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5	90% - 100%	min. 65%

The results obtained in the seminars (based on the results achieved in the Voovo application) account for 50% of the end-of-semester result, in addition to the partial result obtained in the practical training, which accounts for the practical assessment of the semester.

Impact on Final Examination

Students whose average scores in the Voovo application (average of Voovo performance over several

semesters) are within the top 5 percentage of their class, get the score of 5 (excellent) for one item they have chosen from the drawn ones during the kollokvium.

Practice grade:

During the semester, practical work is assessed by evaluating the waxing of one premolar and one molar tooth (grade 1-5, time spent: 4x45 minutes) and the activity shown during the practical sessions, with at least 50% completion required for a pass.

At the end of the semester, the student's overall performance will be evaluated on a percentage basis according to the partial grades for each practical work phase and their activity during the practicals.

The requirement for passing the semester is a minimum of 50% in the combined practical and seminar performance.

If the end-of-semester result is below 50%, the department will refuse the signature.

The assessment will be graded as "fail" if the number of absences from seminars/practical work exceeds the permitted 25%.

During the semester, three practical sessions will be held to prepare for the end-of-semester exam. Students who receive the highest total score for their practical activities, wax application exercises, developed topics, and test results (up to a maximum of 30% of the class) may declare one of the exam questions as passed with distinction.

No offered grade.

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

The use of artificial intelligence is not allowed during the practices, demonstrations and exams. The use of artificial intelligence in the dental machine/devices used for patient care is allowed. Artificial intelligence may be used to assist students' preparation/learning

Printed resources:

Type	Mandatory
Author	Mohl, Zarb, Carlsson, Rugh
Title	A Textbook of Occlusion.
Publisher	Quintessence. Chicago
Year of publication	1988

Type	Mandatory
Author	McNeill
Title	Science and Practice of Occlusion
Publisher	Quintessence. Chicago.
Year of publication	1997

Type	Recommended
Author	J Okeson
Title	Management of Temporomandibular Disorders and Occlusion
Publisher	Mosby
Year of publication	2012

Type	Recommended
Author	Hermann Péter, Szentpétery András
Title	Gnatológia
Publisher	Semmelweis Kiadó
Year of publication	2018

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

Signature of the director of the host institution:

Date of submission:
