

1. BASIC INFORMATION

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| Course | Normal and Pathological Occlusion |
| Degree program | Grade in Dentistry |
| School | BIOMEDICAL SCIENCE |
| Year | SECOND YEAR |
| ECTS | 3 ECTS / 36 h |
| Credit type | COMPULSORY |
| Language(s) | SPANISH / ENGLISH |
| Delivery mode | PRESENCE-BASED |
| Semester | SECOND SEMESTER |
| Academic year | 2024 / 2025 |
| Coordinating professor | Francisco De Sena Espósito |
| Professor | Daniele Grini, Alicia Martinez |

2. PRESENTATION

This subject concerns the field of dental occlusion: the anatomical and functional components of the masticatory system, the basic of the positions and movements of the mandible and the functional anatomy of the occlusal surfaces. It initiates students in the use of articulators and facebows, as well as their classification and purposes.

The practices are intended to let the students implement their theoretical knowledge to the actual practice with patients, regarding the use of articulator and facebows and occlusal analysis.

3. COMPETENCIES AND LEARNING OUTCOMES

Core competences:

- CB1: That students have demonstrated to possess and understand knowledge in an area of study that starts from the base of general secondary education, and is usually found at a level that, although supported by advanced textbooks, also includes some aspects that imply knowledge coming from the vanguard of his field of study.
- CB2: That students know how to apply their knowledge to their work or vocation in a professional manner and possess the skills that are usually demonstrated through the

elaboration and defense of arguments and the resolution of problems within their area of study.

- CB4: That the students can transmit information, ideas, problems and solutions to a specialized and non-specialized public.
- CB5: That students have developed those learning skills necessary to undertake further studies with a high degree of autonomy.

Cross-curricular competences:

- CT1: Autonomous learning: Process that enables a person to be in charge of its own development, choosing his path, strategies, tools and the best moment to learn and apply what has been learnt. An autonomous student, at the end, chooses the best strategies to fulfill his learning goals.
- CT2: Self-confidence: Ability to value our own results, performances and the conviction to fulfill the challenges that have been laid out.
- CT4: Analysis and synthesis ability: Analysis is the reasoning methods that allow us to split up complicated situations into their components; also assesses other alternatives and perspectives to find out optimal solutions. Synthesis aims to reduce the complexity in order to have a better understanding and problem solving capacity.
- CT5: Ability to apply knowledge into practice: ability to use the acquired knowledge in the academic field in the situations, which are similar to the reality of the profession for which they are formed. For example, by relating theoretical foundations with their application to real problems of everyday life, addressing problems and situations close to the professional activity or resolve issues and/or actual problems.
- CT7: Ethical value awareness: Ability to think and act according to the universal principles based on the personal values aimed at his full development related to the commitment of determined social values.
- CT8: Information management: Ability to search, choose, analyze and integrate information from different sources.
- CT9: Personal relationship values: Positive relationship with other verbally and non verbally by assertive communication, understanding by this, the ability to express or transmit what is wanted, thought or felt without causing discomfort, attacking or hurting someone's feelings.

- CT10: Initiative and entrepreneurial spirit: preference to assume and carry out different tasks. Ability to overcome correctly difficult tasks. Problem anticipation ability, to suggest improvements and carry on with the achievement of a task.

General Competences:

GC1 Know the essential elements of the dentist profession, including ethical principles and legal responsibilities.

GC2 Understand the importance of such principles for the benefit of the patient, society, and profession, with special attention to professional secret.

GC3 Know how to identify the patient's concerns and expectations, as well as communicate effectively and clearly, both orally and in writing, with patients, family members, the media, and other professionals.

GC9 Understand the importance of maintaining and using records with patient information for subsequent analysis, preserving the confidentiality of the data

GC12 Understand and recognize the normal structure and function of the stomatognathic apparatus, at the molecular, cellular, tissue and organic levels, at different stages of life.

GC13 Understand and recognize the biomaterial sciences essential for dental practice as well as the immediate management of possible allergies to them

GC14 Know about the general processes of the disease, among which are infection, inflammation, alterations of the immune system, degeneration, neoplasia, metabolic alterations, and genetic disorders.

GC15 Be familiar with the general pathological characteristics of diseases and disorders that affect the organic systems, specifically those that have oral repercussions

GC16 Understand the fundamentals of action, indications, and efficacy of drugs and other therapeutic interventions, knowing their contraindications, interactions, systemic effects, and interactions on other organs, based on the available scientific evidence

GC17 Understand and recognize the principles of ergonomics and safety at work (including control of cross infection, radiation protection and occupational and biological diseases).

GC19 To understand the scientific method and have the critical capacity to assess established knowledge and novel information. To be able to formulate hypotheses, collect and critically evaluate information to solve problems, following the scientific method.

GC21 Knowing how to perform a complete oral examination, including appropriate radiographic and complementary examination tests, as well as obtaining adequate clinical references.

GC25 Know and apply the basic treatment of the most common oral and dental diseases in patients of all ages. Therapeutic procedures must be based on the concept of minimally invasive dentistry and in a comprehensive and integrated approach to the dental treatment.

GC26 Know how to plan and perform multidisciplinary, sequential, and integrated dental treatments of limited complexity in patients of all ages and conditions and patients requiring special care.

GC27 Raise and propose preventive measures appropriate to each clinical situation.

Specific Competences:

SC9. Know the clinical and laboratory diagnostic procedures and tests, know their reliability and diagnostic validity, and be competent in the interpretation of their results.

SC10. Recognise oral normality and pathology, as well as the evaluation of semiological data.

SC13. Handle, discriminate and select appropriate materials and instruments in Dentistry.

SC14. Know dental biomaterials: their handling, properties, indications, allergies, biocompatibility, toxicity, waste disposal and environmental impact.

SC37. Make diagnostic models, mount them, and take inter-occlusal recordings.

SC38. Determine and identify the aesthetic requirements of the patient and the possibilities of satisfying their concerns.

Learning outcomes:

- LO1: Know the physiology of the stomagnathic system.
- LO2: Analyze the mandibular static and dynamic relations.
- LO3: Study the occlusion physiopatology.
- LO4: Understand the alterations of the temporomandibular disorders.
- LO5: Determine the knowledge acquired in order to make a correct diagnosis.
- LO6: Design the different terapeuthical options for each diagnosis.
- LO7: Encourage the critical spirit for choosing the ideal treatment plan.
- LO8: Understanding concepts related to the anatomy, physiology and physiopathology of mandibular dynamics.

| Competencies | Learning outcomes |
|---|-------------------|
| CB1, CT1, CT4, CT5, CT8, CE14 | LO1 |
| CB1, CT1, CT4, CT5, CT8, CT9, CT10CE9- | LO2 |
| CB1, CT1, CT4, CT5, CT8, CE12, CE14, CE15, CE21 | LO3 |

| | |
|---|-----|
| CB1,CB2,CB4,CB5, CT1, CT4, CT5, CT8, CE13, CE14, CE16, CE38 | LO4 |
| CB1,CB2,CB4,CB5,CT2, CT4, CT5, CT7, CT8, CE9, CE9, CE13, CE37 | LO5 |
| CB1,CB2,CB4,CB5,CT2, CT4, CT5, CT7, CT8, CE9, CE9, CE13, CE37 | LO6 |
| CB1, CT1, CT4, CT5, CT8, CE10, CE13, CE16, CE37,CE38 | LO7 |
| CB1,CB2,CB4,CB5,CT2, CT4, CT5, CT7, CT8, CE9, CE9, CE13, CE37 | LO8 |

4. CONTENT

Contents Normal and Pathological occlusion

| THEORY CONTENT |
|--|
| Unit 1. Physiology of the stomatognathic system Lecture 1: Occlusion in dentistry Lecture 2: Comprehensive review of anatomy Lecture 3: Functional neuroanatomy and physiology. Lecture 4: Alignment of the occlusal archs. |
| Unit 2. Static and dynamic occlusion Lecture 5: Mandibular position and movements. Lecture 6: Centric Relation Lecture 7: Eccentric relations. |
| Unit 3. Articulator Lecture 8: Facebows Lecture 9: Articulators Lecture 10: Occlusal schemes. Indications in Prosthodontics. |
| Unit 4: TMJ DISORDERS Lecture 11: Etiology and classifications of the TMJ disorders. |
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PRACTICAL CONTENT:

- Practice 1: Craneomaxilar transference, mounting the upper cast in the articulator
 Practice 2: Craneomandibular transference, mounting the lower cast in the articulator.

5. TEACHING-LEARNING METHODOLOGIES

The types of teaching-learning methodologies used are indicated below:

- Master Classes
- Case methods
- Problem based learning
- Simulation environment
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6. LEARNING ACTIVITIES

Listed below are the types of learning activities and the number of hours the student will spend on each one:

Campus-based mode:

| Learning activity | Number of hours |
|-------------------------------|-----------------|
| Master Classes | 22 h |
| Laboratory practice | 4 h |
| Knowledge test | 2 h |
| Autonomous study and learning | 40 h |
| Tutorial | 4h |
| | |
| | |
| TOTAL | 72 h |

7. ASSESSMENT

Listed below are the assessment systems used and the weight each one carries towards the final course grade:

Campus-based mode:

| Assessment system | Weight |
|--|--------|
| Show the theoretical knowledge you have acquired through the resolution of a knowledge test. | 65% |
| Laboratory practicals | 35% |

When you access the course on the *Campus Virtual*, you'll find a description of the assessment activities you have to complete, as well as the delivery deadline and assessment procedure for each one.

7.1. First exam period

Theoretical Component: To pass de subject in ordinary period you must obtain a grade greater or equal to 5.0 out of 10.0 in the final grade (weighted average of the subject).

Practical Component: It consists of the realization of two practicals in which the students must demonstrate a real understanding of the articulator, as well as mastering the assembly of the models. Both practicals are evaluated over 10 and must be passed separately.

Each of these components must obtain a grade greater or equal to 5.0. If one of them is not passed, it will not average with the rest and must be retaken in order to average the three blocks.

7.2. Second exam period

To pass the subject during the extraordinary period you must obtain a grade greater or equal to 5.0 out of 10.0 in the final grade of the subject. Each component (theoretical and practical) must be approved individually.

Theoretical Component: An exam will be carried out with the same regulations as the one carried out in the ordinary period. The minimum passing grade is 5 points out of 10.

Practical Component: You must perform the practice or practicals that you have failed. The minimum passing grade must be 5 points out of 10.

Article 1 - 4. Continuous assessment

Students taking campus-based studies are required to demonstrate that they have attended at least 50% of their classes. Such attendance forms an essential part of the assessment process and is necessary to give the student the right to receive guidance, assistance and academic supervision from the professor. For such purposes, students must use the technological system put in place by the University to accredit their daily attendance at each of their classes. This system shall furthermore ensure that objective information is gathered regarding the active role of the student in the classroom. The failure to use the methods proposed by the University to demonstrate 50% attendance will give the professor the right to grade the course as a fail under

the ordinary exam period. The foregoing does not affect other requirements of higher attendance percentages that each school may establish in their teaching guides or internal regulations.

Therefore, it is the authority of the professor that students who have not fulfilled the 50% of attendance in the ordinary call must pass all the evaluation tests in the extraordinary call, for which they must obtain a grade greater than or equal to 5.0 out of 10.0 in all of them (Faculty Board 11-07-23).

Article 6 - 12. Final grades

Any student that uses or benefits from unlawful means during an evaluation test or that unduly attributes the author of the academic work required for the assessment will be graded as a “fail” (0) and may similarly be the object of a sanction, subject to the opening of disciplinary proceedings. In the case of the Final Graduation Project, the plagiarism or the lack of originality of the project, will automatically be graded as a “fail” (0) in the corresponding course in both ordinary and extraordinary periods. Likewise, the student will lose their status as a student during six months according with the General Standards for Graduation Projects and Master’s Thesis in its Article 5.

8. SCHEDULE

This table shows the delivery deadline for each assessable activity in the course:

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| <p>Unit 1. Physiology of the stomatognathic system Lecture 1: Occlusion in dentistry Lecture 2: Comprehensive review of anatomy Lecture 3: Functional neuroanatomy and physiology. Lecture 4: Alignment of the occlusal archs.</p> |
| <p>Unit 2. Static and dynamic occlusion Lecture 5: Mandibular position and movements. Lecture 6: Centric Relation Lecture 7: Eccentric relations.</p> |
| <p>Unit 3. Articulator Lecture 8: Facebows Lecture 9: Articulators Lecture 10: Occlusal schemes. Indications in Prosthodontics.</p> |

Unit 4: TMJ DISORDERS

Lecture 11: Etiology and classifications of the TMJ disorders.

PRACTICAL CONTENT:

Practice 1: Craneomaxilar transference, mounting the upper cast in the articulator

Practice 2: Craneomandibular transference, mounting the lower cast in the articulator.

This schedule may be subject to changes for logistical reasons relating to the activities. The student will be notified of any change as and when appropriate.

9. BIBLIOGRAFÍA

Recommended bibliography:

- **Okeson J.** *Tratamiento de **Oclusión** y Afecciones Temporomandibulares*. 5ta edición Clínica Odontológica San Luis Gonzaga De Ica.
- **Castellani, D.,** *Elementi di Occlusione*. 1998. Edizione Martina Bologna
- **Manns, A., Biotti, J.** *Manual Práctico de Oclusión Dentaria*. 2008. Segunda Edición. Amolca

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10. DIVERSITY MANAGEMENT UNIT

From the Educational Guidance and Diversity Unit we offer support to our students throughout their university life to help them reach their academic achievements. Other main actions are the students inclusions with specific educational needs, universal accessibility on the different campuses of the university and equal opportunities.

From this unit we offer to our students:

1. Accompaniment and follow-up by means of counselling and personalized plans for students who need to improve their academic performance.
2. In terms of attention to diversity, non-significant curricular adjustments are made in terms of methodology and assessment for those students with specific educational needs, pursuing an equal opportunities for all students.
3. We offer students different extracurricular resources to develop different competences that will encourage their personal and professional development.
4. Vocational guidance through the provision of tools and counselling to students with vocational doubts or who believe they have made a mistake in their choice of degree.

Students in need of educational support can write to us at:
orientacioneducativa@universidadeuropea.es

11. ONLINE SURVEYS

Your opinion matters!

The Universidad Europea encourages you to participate in several surveys which help identify the strengths and areas we need to improve regarding professors, degree programs and the teaching-learning process.

The surveys will be made available in the “surveys” section in virtual campus or via e-mail.

Your assessment is necessary for us to improve.

Thank you very much for your participation.

