

1. BASIC INFORMATION

Course	ORTHODONTICS I
Degree program	DENTISTRY
School	FACULTY OF HEALTH SCIENCES
Year	THIRD YEAR
ECTS	6 ECTS
Credit type	OBLIGATORY
Language(s)	ENGLISH
Delivery mode	CAMPUS BASED
Semester	FIRST SEMESTER
Academic year	2024-2025
Coordinating professor	CAROLINA ANDRÉS CASTELLÓ

2. PRESENTATION

Contextualization of the contents within the module "Pathology and Dental Therapeutics". It is the first subject that initiates students in orthodontic therapy and in it the features of a normoclusion will be explained to correctly diagnose occlusal problems in a patient. A correct diagnosis is made not only with good knowledge of the dentition of a child patient, but also with the study of their growth and development and its evolution over time, studied by a number of cephalometric analysis that will be seen in detail in subject.

Contextualization of the powers of the topic within the module "Pathology and Dental Therapeutics". In this course a number of competencies of the degree in dentistry are developed: Understanding the basic biomedical sciences on which dentistry is based to ensure correct bucco-dental care (11), understand and recognize the structure and normal function of the oral cavity, to molecular, cellular, tissue and organ level, at different stages of life (12), understand and recognize sciences essential biomaterials for dental practice and immediate handling of possible allergies to them (13), obtain and develop a medical record that contains all relevant information (20), namely a complete oral examination, including appropriate radiographic and additional exploration testing and obtaining appropriate clinical references (21), and the capacity to develop an initial diagnosis and establish a reasoned diagnostic strategy, competent in the re knowledge of situations that require urgent dental care (22).

Module contextualization "Pathology and Dental Therapeutics" in the degree. As is reflected in the curriculum, this module is key in the formation of a future dentist for being the largest degree.

3. COMPETENCIES AND LEARNING OUTCOMES

Core competencies:

- BC1: Students that have demonstrated knowledge and understanding in a field of study that starts of the basis of general secondary education, and is typically at a level that, although it is supported by advanced textbooks, includes some aspects involving knowledge of the forefront of their field of study.
- BC2: Students can apply their knowledge to their work or vocation in a professional manner and have competences typically demonstrated through devising and defending arguments and solving problems within their field of study.
- BC4: Students can communicate information, ideas, problems and solutions to an audience both skilled and unskilled.
- BC5: Students have developed the necessary learning skills to undertake further studies with a high degree of autonomy.

General competencies

- CG1: Know the essential elements of the dental profession, including ethical principles and legal responsibilities.
- CG10: Ability to know and identify the psychological and physical problems derived from gender violence to train students in prevention, early detection, assistance, and rehabilitation of victims of this form of violence.
- CG12: Ability to understand and recognize the normal structure and function of the stomatognathic apparatus, at the molecular, cellular, tissue and organic level, in the different stages of life.
- CG13: Ability to understand and recognize the sciences of biomaterials essential for dental practice, as well as the immediate management of possible allergies to them
- CG14: Knowledge of general disease processes, including infection, inflammation, immune system alterations, degeneration, neoplasia, metabolic alterations and genetic disorders.
- CG15: Be familiar with the general pathological characteristics of diseases and disorders that affect organic systems, specifically those that have an oral impact.
- CG16: Ability to understand the basis of action, indications and effectiveness of drugs and other therapeutic interventions, knowing their contraindications, interactions, systemic effects and interactions on other organs, based on the available scientific evidence.

- CG19: Knowledge of the scientific method and having the critical capacity to evaluate established knowledge and new information. Be able to formulate hypotheses, collect and critically evaluate information to solve problems, following the scientific method.
- CG20: Ability to obtain and prepare a medical history that contains all relevant information.
- CG22: Ability to make an initial diagnostic judgment and establish a reasoned diagnostic strategy, being competent in recognizing situations that require urgent dental care.
- CG23: Ability to establish the diagnosis, prognosis and adequate therapeutic planning in all clinical areas of Dentistry, being competent in the diagnosis, prognosis and preparation of the dental treatment plan of the patient who requires special care, including medically compromised patients. (such as diabetics, hypertensives, immunosuppressed, anticoagulated, among others) and patients with disabilities.
- CG25: Ability to know and apply the basic treatment of the most common oral pathology in patients of all ages. Therapeutic procedures should be based on the concept of minimal invasion and a global and integrated approach to oral treatment.
- CG3: Ability to 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.
- CG9: Ability to understand the importance of maintaining and using records with patient information for subsequent analysis, preserving the confidentiality of the data.

Cross-curricular competencies:

- TC1: Responsibility: The student is able to bear the consequences of the actions taken and accountable for their own actions.
- TC4: Communication skills: Students will be able to express concepts and ideas effectively, including the ability to communicate in writing with conciseness and clarity, as well as public speaking effectively.
- CT7: Teamwork: Students will be able to participate in an active way in achieving a common goal, listening, respecting and valuing the ideas and proposals of the other members of his team.
- CT8 Initiative: The student should be able to anticipate proactively proposing solutions or alternatives to the situations presented.
- CT9: Planning: The student is able to effectively determine their goals and priorities defining actions, deadlines, and optimal resources required to achieve these goals.

Specific competencies:

- SC34: Perform basic treatments buco-dental pathology in patients of all ages. Therapeutic procedures should be based on the concept of minimally invasive and in a global and integrated approach of the buco-dental treatment.
- SC35: Diagnose, plan and implement, in general, a multidisciplinary treatment, sequential and

integrated with limited complexity in patients of all ages and conditions, and patients with special needs (diabetes, hypertension, cancer, treatment transplanted, immunosuppressed, anticoagulated, between others) or disabled. Specifically, the dentist must be competent in establishing a diagnosis, prognosis and a development of appropriate therapeutic planning, and particularly in orofacial pain, temporomandibular disorders, bruxism and other parafunctional habits; tooth and periapical disease; oral-dental trauma; periodontal disease and peri-implant tissues; maxillary bone pathology, oral soft tissues and adjacent glands; states of partial or total edentation and in the planning of its rehabilitative treatment by means of dental and muco-supported prostheses, or dental implants, malpositions and / or dental malocclusions and other anatomical alterations or functions of the face or stomatognathic system and its possible orthodontic corrections, orthopedic or surgical.

- SC36: take and interpret X-rays and other procedures based on image, relevant in dental practice.
- SC37: Carry out diagnostic models, articulate them and take inter-occlusal records
- SC38: To determine and identify the aesthetic requirements of the patient and the chances of achieving their concerns
- SC39: Identify patients requiring special care, recognizing its characteristics and peculiarities.
- SC40: Evaluate the motor and sensory function of the mouth and jaw.
- SC41: Perform limited invasive diagnostic techniques procedures in soft tissue (biopsy).
- SC42: Competent in prescribing drugs appropriate for knowing their contraindications, interactions, systemic effects and effects on other organs.
- SC43: Apply techniques of loco-regional anesthesia.
- SC44: Prepare and isolate the operative field.
- SC45: Identify, evaluate and respond to emergencies and medical emergencies that may arise during clinical practice and apply techniques cardiopulmonary resuscitation; manage acute infections including drug prescriptions and simple surgical aspects.
- SC46: Identify and address any dental emergency.
- SC47: Carry both medical and surgical treatment of common diseases of the oral soft tissues.
- SC48: Perform simple surgical procedures: extraction of temporary and permanent erupted teeth, or retained fractured roots and uncomplicated surgical removal of impacted teeth and simple procedures of pre-prosthetic surgery.
- SC49: Treating dentoalveolar trauma in temporary and permanent dentition
- SC50: Treat both pharmacological and surgically, inflammatory processes of the periodontal and / or peri-implant tissues with techniques including supragingival and subgingival periodontal instrumentation.
- SC51: Evaluate and treat patients with non-cariou cavities or other dental pathology and be able to use all materials designed to restore form, function and aesthetics of the tooth in patients of

all ages.

- SC52: Design, prepare teeth, prescribe, record, clinical testing and place and remove indirect restorations: inlays, veneers or laminates aesthetic fronts and individual crowns.
- SC53: Treat operatively destructive processes and dentoalveolar traumatic injuries.
- SC54: Perform endodontic treatments and implement procedures to preserve pulp vitality.
- SC55: Carry out conventional aesthetic procedures from a multidisciplinary perspective.
- SC56: Treat both partial and fully edentulous, including biological design (specific design features), tooth preparation, obtaining records, clinical trials and adaptation to patients with removable partial dentures and complete, simple bridges dento-supported and prosthetics simple implant, both removable and fixed, including their "placement" and "commissioning".
- SC57: Develop requirements for medical devices as "dentures" and "orthodontic and orthopedic appliances»
- SC58: Perform non-surgical treatment of Temporomandibular disorders and orofacial pain
- SC59: Perform bucodental child patient treatment and recognize their characteristics and peculiarities
- SC60: Identify and correct oral habits likely to cause or exacerbate malocclusion.
- SC61: Plan, determine specific design features of the appliance, records, prescription, clinical trials, placement and adjustment of fixed and removable space maintainers, interceptive orthodontic techniques and removable active elements for moving teeth or correcting crossbites.

Learning outcomes:

- LO1: Knowledge of the Classification and Etiology of malocclusion,
- LO2: Knowledge required for orthodontic diagnosis: Study cephalometric and facial analysis.
- LO3: Study horizontal, vertical and Class I, II and III syndromes
- LO4: Basics of Fixed and Removable Devices in Orthodontics.
- LO5: Development of general competencies for clinical activity in orthodontics.

The following table shows the relationship between the competencies developed during the course and the learning outcomes pursued:

Competencies	Learning outcomes
GC12,GC14,GC15,GC19,GC20,GC22,GC23,BC5,SC34,SC35,SC60	LO1
GC15,GC19,GC20,GC22,GC22,GC23,BC5,SC34,SC35,SC36,SC60	LO2
GC12,GC14,GC15,GC19,GC20,GC22,GC23,BC5,SC34,SC35,SC39,SC60	LO3

GC19,BC5,SC34,SC35,SC47,SC59,SC60,SC61	LO4
GC1,GC3,GC9,GC10,GC12,GC13,GC15,GC16,GC19,GC25,BC1,BC2,BC4,BC5,TC1,TC4,TC7,TC8,TC9,SC34,SC35,SC37,SC38,SC39,SC40,SC41,SC42,SC43,SC44,SC45,SC46,SC47,SC48,SC49,SC50,SC51,SC52,SC53,SC54,SC55,SC56,SC57,SC58,SC59,SC60	LO5

4. CONTENT

The SUBJECT is organized into three learning units (AU), which in turn are divided into lessons.

- **UNIT I: INTRODUCTION AND RECORDS**

Lesson 1 - Introduction to orthodontics.

Lesson 2 - Nature and morphology of normocclusion.

Lesson 3 - Concept and classification of malocclusions.

Lesson 4- Etiology of malocclusion.

Lesson 5 - Exploration in orthodontics: History and facial analysis.

Lesson 6 – Study cast analysis I

Lesson 7 – Study casta analysis II

Lesson 8 - Odontometric Analysis I.

Lesson 9 - Odontometric Analysis II.

Lesson 10 – Physiopathology of tooth eruption

Lesson 11- Development of primary dentition

Lesson 12- Mixed dentition

- **UNIT II: CEPHALOMETRIC STUDY**

Lesson 13- Introduction to Cephalometrics

Lesson 14 - Anatomy of lateral cephalometric

Lesson 15 - Cephalometric methods

Lesson 16- Use of cephalometrics

- **UNIT III: CRANIOFACIAL GROWTH**

Lesson 17. Craniofacial growth

Lesson 18- Growth and facial types variations

Lesson 19 - Types of craniofacial growth.

Lesson 20 – Growth factors

Lesson 21- Growth of the cranial vault, cranial base and naso-maxillary complex.

Lesson 22 - Growth of the mandible.

Lesson 23 – Osseus Dysplasias

Pre-clinical practices content:

- Facial analysis
- Permanent dentition case analysis
- Calculation of tooth size- arch length discrepancy
- Calculation of Bolton analysis
- Mixed dentition cast analysis
- Calculation of Moyers analysis
- Cephalometric tracing
- Cephalometric tracing. Steiner analysis
- Cephalometric tracing. Analysis of Ricketts

5. TEACHING-LEARNING METHODOLOGIES

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

- Master class
- Case method
- Problem-based learning
- Simulation environment

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
Masterclasses	10h
Laboratory practices	32,5h
Practical exercises	20 h
Case analysis	14 h
Seminars	2h
Tutorials	13h
Virtual Master Classes	6h
Independent study and work	51h
Face-to-face knowledge tests	1,5h

TOTAL	150 h
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7. ASSESSMENT

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

Campus-based mode:

Evaluable activity	Weight (%)
<i>Knowledge Test</i>	40%
<i>Preclinical practice</i>	40%
<i>Case analysis</i>	10%
<i>Case-Problem</i>	10%

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. Ordinary call (first exam period)

To pass the course in the first exam period, you must obtain a grade greater than or equal to 5.0 out of 10.0 in the final grade (weighted average) of the course.

In any case, it will be necessary to obtain a grade greater than or equal to 5.0, independently, in each of the evaluation systems that make up the course (including the knowledge tests separated into partials). It may be assessed that a grade equal to or greater than 4 is needed in the knowledge tests when separated into partial exams.

The Universidad Europea de Valencia establishes continuous assessment as a system of evaluation of knowledge, skills and core, general, cross-curricular and specific competences of the degree in Dentistry, in accordance with the provisions of the Regulations for the evaluation of undergraduate degrees. In this regard and for the purposes of the use of calls the student should be aware that, if any evaluation system

provided in the Learning Guide, in the ordinary call (first exam period the student will have an overall grade of the subject, thus using up one call.

According to the aforementioned Regulations, students taking face-to-face degree courses are required to justify at least 50% of class attendance, as a necessary part of the evaluation process and in the case of theoretical or practical classes determined as mandatory by the teacher in the schedules of the subject, the student must register an attendance of 90%, whether the absence is justified or not. The lack of accreditation by the means proposed by the University will entitle the professor to grade the subject as failed in the ordinary call, according to the grading system.

Punctuality will be required, 3 delays of more than 15 minutes or departures before class will be counted as a lack of attendance.

The student must consult in the schedule of the course in the Virtual Campus the sessions of compulsory attendance in the classroom.

The mention of "Matrícula de Honor" will be awarded to students who have obtained a grade equal to or higher than 9.0. Their number may not exceed 5% of the students enrolled in each subject in the corresponding academic year, unless the number of students enrolled is less than 20, in which case only one honorary registration may be awarded.

Theory (40% of the final grade)

- There will one final written knowledge test that will consist of 30 multiple choice questions on the syllabus of the subject and the contents taught in practices. Each question has a value of 0.25, with a total value of 7 points out of 10. Every three incorrectly answered questions will subtract a correct one. Unanswered questions do not discount the total of the grade.
- In addition to the multiple-choice question part, the test will have 2 short questions with a value of 1.5 points each, a total of 3 points out of 10.
- The total content of the theoretical test, therefore, will be 30 multiple choice questions and 2 short questions.
- This test of 30 test questions and 2 short questions, will have a grade of 40% of the total grade for the subject and will have to be passed with a score equal to or greater than 5 out of 10. If the test is not passed, the student must attend the extraordinary call.

- To pass the theoretical knowledge test in the ordinary session you must obtain a grade greater than or equal to 5.0 out of 10.0 in the final grade (weighted average) for the subject.

Practical part (40% of the final grade)

- A continuous evaluation of pre-clinical practice will be held. The work will be grade in each of the practices during the semester. In addition, throughout the semester, they will be running tests assessment about the practices. The overall grade is obtained as average between the various grades obtained depending on the contents to be evaluated at all times.
- The pre-clinical practices carried out during the semester will have a weight of 20% of the total mark of the practices. This part is not recovered in extraordinary call, the average of the grade obtained will remain.
- The remaining 20% will correspond to two tests of the cephalometry contents:
 - 10%: **Cephalometry multiple choice test**, which will be carried out on a date agreed upon between the teacher and the students after having taught the theoretical contents. There will be 15 multiple choice questions with 4 answer options, but only one correct option. This test will have to be passed with a grade equal to or greater than 5 out of 10. If the test is not passed, the student must attend the extraordinary call. Without this part passed, the student will not be able to take the tracing exam and therefore will not be able to pass the practical part of the subject. In an extraordinary call, teacher and student will agree on a date for a second attempt. If on the second attempt the test is not passed again, the practical part will not be passed and therefore the subject will fail. Once this test has been passed, whether in an ordinary or extraordinary session, the student will have two attempts for the cephalometric tracing test.
 - 10%: **Cephalometric tracing test**, which will be carried out on the day of the last practice of the subject. This test will have to be passed with a grade equal to or greater than 5 out of 10. If the test is not passed, the student must attend the extraordinary call.

Case analysis (10% of the final grade)

- A test of a clinical case with images will be carried out once all the theoretical topics about the subject are completed. Any of the theoretical content taught in the subject can be evaluated.
- The clinical case will be held together with the theoretical test, the same day.
- To pass the resolution of clinical cases, it is necessary to obtain an equal or greater rating of 5 out of 10.
- This part if not passed in the ordinary call, it will be recovered in the extraordinary call the same day of the theoretical tests.

Case / problem (10% of the final grade)

- A debate called "Point / Counter Point" in which groups will discuss issues of clinical character in orthodontics is performed.
- They will be provided with articles from scientific nature which will they will use to make a power point presentation where the content of the article is exposed.
- To pass this exercise, it is necessary to obtain an equal or greater rating of 5 out of 10.
- This part is not recovered in extraordinary call, the average will kept the mark obtained but attendance at these presentatios is mandatory regardless if the student presents or not that day.
- Non-attendance means a grade of 0 in this part.

Students that do not obtain at least a score of 5 out of 10 have failed the subject.

Each percentage described above in the different sections of the course will have to be qualified independently and the average will be obtained following the criteria described above.

In case of failing any of the parts that have to be overcome in the ordinary call (theoretical test, Cephalometry ...), all other grades will be respected and after passing the corresponding part, the average will be done.

To make the average the student must overcome all the parts separately.

Class attendance is mandatory and practices under Article 1.4 of the Rules of evaluation to a minimum of 75% of the theoretical classes and 90% of practices.

7.2. Extraordinary call (second exam period)

To pass the course in the second exam period, you must obtain a grade higher or equal to 5.0 out of 10.0 in the final grade (weighted average) of the course.

In any case, it will be necessary to obtain a grade greater than or equal to 5.0 in the final test, so that it can be averaged with the rest of the activities.

The activities that were not handed in or passed in the first exam period must be submitted, after having received the corresponding corrections from the teacher.

The Universidad Europea de Valencia establishes the continuous evaluation as a system of assessment of knowledge, skills and core, general, cross-curricular, and specific competences of the degree in Dentistry, in accordance with the provisions of the Regulations for the evaluation of undergraduate degrees. In this regard and for the purposes of using calls, the student should be aware that in the extraordinary call the Objective Test of Knowledge (OTK) which determines whether or not the call was used. In the exceptional case that the student only needs to pass evaluation system /s that are not the OTK, it will be considered NP if not presented and will obtain a numerical grade if the student was examined of, at least, one of them.

Pursuant to the aforementioned Regulations, students taking face-to-face degree courses are required to justify at least 50% of class attendance, as a necessary part of the evaluation process, and in the case of theoretical or practical classes determined as mandatory by the teacher in the schedules of the subject, the student must register an attendance of 90%, whether the absence is justified or not. Those students who, due to non-compliance with this requirement, must take the extraordinary call (second exam period), need to perform as many activities or knowledge tests determined by the teacher to recover this part successful completion will be based on the specified rubric.

- **The Cephalometry test and tracing test can be recovered by taking the exam again on the date established by the teaching staff or on the same day that the theoretical tests are carried out.**
- For the subject to be approved, all parts must be approved independently with a grade of 5 out of 10 or higher. Only then can the average be made with the other parts.
- To pass the subject in the ordinary session you must obtain a grade greater than or equal to 5.0 out of 10.0 in the final grade (weighted average) of the subject.

8. SCHEDULE

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

Assessable activities	Deadline
Knowledge theory test	January 2025
Case analysis	January 2025
Pre-clinical practice	September- December 2024
Cephalometry multiple choice test	November 2024
Cephalometric practical test	December 2024
Clinical case/Problem	December 2024

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. BIBLIOGRAPHY

The main reference work for this subject is:

- BRAVO, L.A. (2007). **Manual de Ortodoncia**. Madrid: Síntesis.

The recommended Bibliography is:

- CANUT BRUSOLA, J.A. (2005). **Ortodoncia Clínica y Terapéutica**. Barcelona: Masson. 2ª edición.
- PROFFIT, W. (2018). **Contemporary Orthodontics**. Philadelphia, IL: Elsevier. 6th edition.

10. EDUCATIONAL GUIDANCE AND DIVERSITY 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:

unidad.diversidaduev@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.