Information about the subject

Degree: Bachelor of Science Degree in Dentistry

Faculty: Faculty of Medicine and Health Sciences

Code: 480304 **Name:** Orthodontics I

Credits: 6,00 **ECTS Year:** 3 **Semester:** 2

Module: Module 4: Dental Pathology and Therapeutics

Subject Matter: DENTAL THERAPY **Type:** Compulsory

Field of knowledge: Health Sciences

Department: Dentistry

Type of learning: Classroom-based learning

Languages in which it is taught: English, Spanish

Lecturer/-s:

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Module organization

Module 4: Dental Pathology and Therapeutics

Subject Matter	ECTS	Subject	ECTS	Year/semester
DENTAL THERAPY	66,00	Cosmetic Dentistry	6,00	4/2
		Orthodontics I	6,00	3/2
		Orthodontics II	6,00	4/1
		Paediatric Dentistry I	6,00	4/1
		Paediatric Dentistry II	6,00	4/2
		Pathology and Dental Therapeutics I	6,00	3/1
		Pathology and Dental Therapeutics II	6,00	3/2
		Pathology and Dental Therapeutics III	6,00	4/1
		Prosthodontics I	6,00	3/1
		Prosthodontics II	6,00	3/2
		Prosthodontics III	6,00	4/1
DENTAL PATHOLOGY	60,00	Dental Traumatology	6,00	5/1
		Dentistry in Special Patients	6,00	4/2
		Emergencies in Dentistry	6,00	5/2
		Legal and Forensic Dentistry	6,00	5/1

DENTAL PATHOLOGY	Oral Medicine	6,00	3/1
	Oral Surgery I	6,00	4/1
	Oral Surgery II - Implantology	6,00	5/2
	Pathology of the Temporo-Mandibular Joint and Orofacial Pain	6,00	4/2
	Periodontics I	6,00	3/2
	Periodontics II	6,00	4/2

Recommended knowledge

It is recommended to have passed the subject of Embryology and Human Anatomy I and Human Anatomy II, so that the following contents have been passed:

- ·Knowledge of the embryological development of the bones of the craniofacial complex.
- ·Knowledge of the physiology of the eruptive process
- ·Knowledge of the anatomy of the temporary and permanent dentition.
- ·Knowledge of the anatomy of the craniofacial complex and its disorders.

Learning outcomes

At the end of the course, the student must be able to prove that he/she has acquired the following learning outcomes:

R1	The student is able to obtain and elaborate a clinical history.
R2	Knows how to carry out an intra and extraoral clinical examination.
R3	Prepares orthodontic diagnostic models and evaluates them.
R4	Knows the classification of Angle.
R5	The student is able to diagnose orthodontic-orthopaedic problems of limited complexity.
R6	Performs cephalometric analysis.
R7	The student is able to early diagnose and determine appropriate therapy for the malocclusion.
R8	Knows how to clinically evaluate the most relevant aspects of the facial deformity, as well as the malocclusive problem.
R9	Adequately interprets dental and radiological markers (wrist/spine x-rays) to estimate the biological age of the patient.
R10	Proves knowledge to carry out the analysis of the dentition, and the bone characteristics of the patient, in the premature phase for the diagnosis and interceptive treatment.
R11	Studies and proves knowledge of the physiopathological bases associated with dental movement.

Competencies

Depending on the learning outcomes, the competencies to which the subject contributes are (please score from 1 to 4, being 4 the highest score):

GENERAL	Weighting			
	1	2	3	4
CG1 I a Capacity for analysis and synthesis				x
CG2 I b Organizational and planning skills			x	

SPECIFIC	Weighting			
	1	2	3	4
CE A 7 Promote autonomous learning of new knowledge and techniques, as well as motivation for quality.				x
CE A 9 Understand the importance of maintaining and using records with patient information for subsequent analysis, preserving the confidentiality of the data.		x		
CE C 2 Be able to make an initial diagnostic judgement and establish a reasoned diagnostic strategy, being competent in the recognition of situations requiring urgent dental care.				x
CE D 2 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 minimum invasion and on a global and integrated approach to oral treatment.		x		
CE D 2 Know how to plan and carry out multidisciplinary, sequential and integrated dental treatments of limited complexity in patients of all ages and conditions and patients requiring special care.		x		
CE D 2 Plan and propose the appropriate preventive measures for each clinical situation.			x	
CE E 3 Recognise the role of the dentist in actions to prevent and protect against oral diseases, as well as in the maintenance and promotion of health, both at individual and community level.				x

TRANSVERSAL		Weighting			
		1	2	3	4
1. a.	Analysis and synthesis skills				x
1. b.	Organizational and planning capacity			x	
1. c.	Oral and written communication in the native language.			x	
1. d.	Knowledge of a foreign language			x	
1. e.	Computer skills				x
1. f.	Information management capacity			x	
1. g.	Problem solving				x
1. h.	Decision making				x
2. i.	Teamwork				x
2. k.	Work in an international context			x	
2. l.	Interpersonal skills	x			
2. m.	Recognition of diversity and multiculturalism			x	
2. n.	Critical Reasoning				x
2. o.	Ethical commitment			x	
3. p.	Autonomous learning			x	
3. q.	Adaptation to new situations				x
3. r.	Creativity			x	
3. s.	Leadership			x	

3. u.	Initiative and entrepreneurship			x	
3. v.	Motivation for quality			x	
3. w.	Sensitivity to environmental and socio-health issues	x			

Assessment system for the acquisition of competencies and grading system

Assessed learning outcomes	Granted percentage	Assessment method
	15,00%	OPEN QUESTIONS: Written exam in which basic theory knowledge and the ability to relate, integrate and coherently express it in writing is assessed.
	40,00%	MULTIPLE CHOICE TEST: Multiple choice test with one correct answer. This shows to greater extent the contents acquired by the student.
	20,00%	PRACTICAL: Written test in which the student is asked to solve practical exercises, clinical cases or problems about the contents of different subjects.
	5,00%	CLASS PARTICIPATION: The teacher assesses the participation, involvement and progress the student makes in acquiring knowledge and skills in theory and practical classes and seminars. This is never more than 5% of the final grade.
	20,00%	PRACTICAL EXAM: The student carries out a test in which he/she must show by means of practical application the acquisition of certain knowledge. For example, histological or anatomopathological diagnoses, interpretation of images or diagnostic tests.

Observations

The subject will consist of two theoretical and practical parts
The practical part will consist of 24 hours of preclinical practice, which will be explaned in the classroom, simulation laboratory or dental clinic as indicated by the responsible teaching staff.
These hours will be divided into 12 sessions of 2 hours each one:
·Attendance is required at 90% of the practices, which allows a single absence and always in a justified manner. The justifications will be governed by the same reasons that are established in the Regulations and statutes of the UCV that justify a change of date of official examination and provided that it is communicated 7 days in advance or in the following 15 days to the absence.
·In case of having a justified absence, the student may attend the first and second exam calls provided that they carry out the relevant recovery work in the time and manner marked by the responsible teacher.

·In case of having two justified absences, the student will lose the option of attending the first call *, leaving as the only option to pass the subject only the second call, provided that he performs the recovery work arranged by the responsible teacher.

·In case of having an absence NOT justified, the student will lose the option to go to the first call, leaving as the only option to pass the subject only the second call, provided that he performs the recovery work arranged by the responsible teacher.

·It is required to obtain a 5 in the practices to be able to continue with the rest of the evaluation systems.

·In order to evaluate the practices, a task will be opened on the platform that the student must deliver in a timely manner. Not adjusting to the format and / or times will mean a 0 in this practice.
The theoretical exam will consist of open questions and multiple choice questions MCQ: it is required to obtain a 5 in the set of the theoretical exam to be able to continue with the rest of the evaluation systems.
The practical exam will be held on the same day of the theoretical exam and it is required to obtain a 5 in the set of the theoretical exam to be able to continue with the rest of the evaluation systems.
In case of failing one of the parts of the exam in the 1st call (practical or theoretical) the note will be saved for the second call, of the same academic year, provided that a 5 has been obtained in the approved part and more than a 3.5 in the suspended part.

Group S:

·The grade of the approved exams are not saved for the calls of other academic years.

·The note of the set of practices will be saved for future courses provided that the 12 practices have been completed and have been approved with more than a 5.

***Not taking a call refers to both theoretical and practical exams.**

MENTION OF DISTINCTION:

In accordance with the regulations governing the assessment and grading of subjects in force at UCV, the distinction of "Matrícula de Honor" (Honours with Distinction) may be awarded to students who have achieved a grade of 9.0 or higher. The number of "Matrículas de Honor" (Honours with Distinction) may not exceed five percent of the students enrolled in the group for the corresponding academic year, unless the number of enrolled students is fewer than 20, in which case a single "Matrícula de Honor" (Honours with Distinction) may be awarded. Exceptionally, these distinctions may be assigned globally across different groups of the same subject. Nevertheless, the total number of distinctions awarded will be the same as if they were assigned by group, but they may be distributed among all students based on a common criterion, regardless of the group to which they belong. The criteria for awarding "Matrícula de Honor" (Honours with Distinction) will be determined according to the guidelines stipulated by the professor responsible for the course, as detailed in the "Observations" section of the evaluation system in the course guide.

Learning activities

The following methodologies will be used so that the students can achieve the learning outcomes of the subject:

M1 Lecture.
Problem Solving.
Explanation of contents by the teacher.
Explanation of knowledge and skills.

M2 Practical basic sciences laboratory sessions, practical simulation laboratory sessions, virtual hospital and dissecting room.

M3 Problem and case solving.
Social action activities.

M4 Group work with research, discussion and filtering information about the degree subjects.

M6 Discussion and problem solving.

M8 Oral presentations by students.

M9 Group work: group work sessions supervised by the teacher.
Knowledge building through interaction and activity of students.

M10 Carrying out bibliographic reviews and practical work experience dissertations.

M11 Practical in-person classes in clinics linked to the university, where the student will carry out different treatments under direct supervision from the assigned tutor.

M12 Seminars, supervised monographic classes with shared participation.

M13 Personal preparation of written texts, essays, problem solving, seminars.

M15 Personalised Attention. Period of instruction and/or guidance carried out by a tutor with the aim of analysing with the student his/her work, activities and evolution in learning of subjects.

IN-CLASS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
THEORY CLASS M1	R1, R2, R4, R5, R7, R9, R10	34,00	1,36
TUTORING M15	R1, R2, R4, R5, R7, R9, R10	2,00	0,08
EVALUATION M3, M6, M8	R1, R2, R4, R5, R7, R9, R10	2,00	0,08
PRACTICAL CLASS M2, M3, M4, M6	R1, R2, R4, R5, R7, R9, R10	24,00	0,96
TOTAL		**62,00**	**2,48**

LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
INDIVIDUAL WORK M3, M10, M13	R1, R2, R4, R5, R7, R9, R10	50,00	2,00
GROUP WORK M4	R1, R2, R4, R5, R7, R9, R10	38,00	1,52
TOTAL		**88,00**	**3,52**

Description of the contents

Description of the necessary contents to acquire the learning outcomes.

Theoretical contents:

Content block	Contents
BLOCK I INTRODUCTION TO ORTHODONTICS	1.Introduction to the subject: theory and practice. 2.Evaluation systemConcept of orthodontics. Definition, nomenclature and terminology 3.Branches of Orthodontics: Preventive, Interceptive,& Corrective orthodontics 4.Concept of normal occlusion and malocclusion. Andrews's keys.
BLOCK II GROWTH AND DEVELOPMENT	1.General principles of growth and development 2.Types of growth. Theories of growth control 3.Indicators of maturity. Ages. Prediction Techniques 4.Sites of growth: Cranial vault, Cranial base. 5.Sites of growth: Nasomaxillary complex & Mandible. 6.Development of dentition: Physiology & Alterations of dental eruption I 7.Development of dentition: Physiology & Alterations of dental eruption II

BLOCK III ETIOLOGY AND DIAGNOSIS OF MALOCCLUSION	1.Etiology of malocclusion: Genetic basis. 2.Etiology of malocclusion: Environmental factors 3.Orthodontic diagnosis: Medical history. Clinical exploration 4.Orthodontic diagnosis: Dental cast analysis. Odontometric analysis. 5.Orthodontic diagnosis: Tooth-size Arch-length Discrepancy . Bolton Analysis 6.Orthodontic diagnosis: Photographic analysis 7.Orthodontic diagnosis: Panoramic radiography. 8.Orthodontic diagnosis: Frontal & lateral radiography 9.Orthodontic diagnosis: CBCT 10.Orthodontic diagnosis: Fully adjustable articulator and digital articulator 11.Orthodontic diagnosis: The decision-making process in orthodontics and psychological aspects of the patient 12.Introduction to the cephalometry: Main structures. Main analysis 13.Main cephalometric methods: Steiner analysis 14.Main cephalometric methods: Ricketts analysis 15.Cephalometric superimpositions
BLOCK IV EVIDENCE AND ARTIFICIAL INTELLIGENCE	1.The Role of Evidence in Orthodontics 2.Applications of Artificial Intelligence and Big Data Analytics in Orthodontics

Temporary organization of learning:

Block of content	Number of sessions	Hours
BLOCK I INTRODUCTION TO ORTHODONTICS	2,00	4,00
BLOCK II GROWTH AND DEVELOPMENT	6,00	12,00
BLOCK III ETIOLOGY AND DIAGNOSIS OF MALOCCLUSION	21,00	42,00
BLOCK IV EVIDENCE AND ARTIFICIAL INTELLIGENCE	2,00	4,00

References

Aguilá FJ. y Enlow DH. (2006) Crecimiento craneofacial: ortodoncia y ortopedia. 3ªed,Mejico; Interamericana McGraw Hill.Bravo LA. (2003) Manual de ortodoncia. Madrid; Edictorial Sintesis SA.Canut JA. (2000) Ortodoncia clínica y terapéutica. 2ªed, Barcelona; Masson. Graber LW., Vanarsdall RL., Vig KWL. (2012) Orthodontics: current principles and techniques. 5ªed, Philadelphia; Elsevier, Mosby.
Graber LW., Vig KWL., Greg JH. (2023) ORTHODONTICS: CURRENT PRINCIPLES AND TECHNIQUES, SEVENTH EDITION. Elsevier. ISBN: 9780323778596Proffit WR. (2013) Contemporary Orthodontics. 5ªed, St. Louis, Missouri; Mosby.. Subhashchandra Phulari B. (2017) Orthodontics Principleas and practice. 2nd ed, New Delhi; Jaypee Brothers Medical Publishers.Zamora C, Duarte S. (2002) Atlas de Cefalometria: Analisis ClÍnico Práctico. México D.F: Ed. Amolca.