COURSE DATA

Data Subject	
Code	34720
Name	Orthodontics I
Cycle	Grade
ECTS Credits	12.0
Academic year	2022 - 2023

Study (s)

Degree	Center	Acad. year	Period
1206 - Degree in Dentistry	Faculty of Medicine and Odontology	4	Annual

Subject-matter

Degree	Subject-matter	Character
1206 - Degree in Dentistry	21 - Orthodontics	Obligatory

Coordination

Name	Department
GANDIA FRANCO, JOSE LUIS	131 - Stomatology
TARAZONA ALVAREZ, BEATRIZ	131 - Stomatology

SUMMARY

The compulsory subject Orthodontics I, is the first part of Orthodontics matter belonging to Dental Pathology and Therapy Module. This subject has a total of 18 ECTS credits that are divided between Orthodontics I, which is offered in 4th course of the Degree having 12 ECTS credits and Orthodontics II, which is offered in 5th course of the Degree having 6 ECTS credits.

Relatively independent of the rest of the subjects of the module in its diagnosis methods and classification, clinical treatment procedures and part of the basic sciences on which it is based, Orthodontics I provides a diachronic view of the dentition and the possibilities of changing the provision and occlusion of teeth in different moments of life of the patient.

It has a special relationship and some matches, without excluding relations with Basic Science, with Pediatrics Dentistry and Prosthetics, which orthodontics can add options or improve treatment. It also shares responsibility in some types of treatment with Oral Surgery and Orthognathic Surgey and Periodontics, especially regarding periodontium biology, and finally with Biomaterials Science and Epidemiology.

In the subject of Orthodontic I, basic knowledge and skills in morphological, etiopatogenicand descriptive diagnosis of occlusion and malocclusion are covered. The development of dentition, craniofacial growth, biomechanics and use of treatment materials, biology of tooth movement, general characteristics of treatment, appliances and risks associated with orthodontic therapy is studied. Specific models of clinical treatment of malocclusions are developed in the subject of Orthodontics II.

PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

1206 - Degree in Dentistry :

1210 - Grado de Odontología 2012 :

R4-OBLIGATION TO HAVE SUCCESSFULLY COMPLETED THE COURSE

34696 - Human anatomy

34697 - Biology

34698 - Human physiology

34699 - Biochemistry

34702 - Psychology and communication

34703 - Biostatistics and public health

34696 - Human anatomy

34697 - Biology

34698 - Human physiology

34699 - Biochemistry

34702 - Psychology and communication

34703 - Biostatistics and public health

Other requirements

OUTCOMES

1206 - Degree in Dentistry

- Saber realizar un examen bucal completo, incluyendo las oportunas pruebas radiográficas y de exploración complementarias, así como la obtención de adecuadas referencias clínicas
- Conocer y aplicar el tratamiento básico de la patología bucodentaria más habitual en pacientes de todas las edades. Los procedimientos terapéuticos deberán basarse en el concepto de invasión mínima y en un enfoque global e integrado del tratamiento bucodental.

- Tomar e interpretar radiografías y otros procedimientos basados en la imagen, relevantes en la práctica odontológica.
- Realizar modelos diagnósticos, montarlos y tomar registros inter-oclusales.
- Elaborar las prescripciones de los productos sanitarios a medida «prótesis dentales» y «aparatos de ortodoncia y ortopedia dento-facial».
- Determinar e identificar los requisitos estéticos del paciente y de las posibilidades de satisfacer sus inquietudes.
- Planificar, determinar las características especificas de diseño, registros, prescripción, pruebas clínicas, colocación y ajuste clínico para puesta en servicio de mantenedores de espacio fijos y removibles y técnicas de ortodoncia interceptiva así como elementos activosextraíbles destinados a desplazar dientes o corregir mordidas cruzadas.
- Identificar y corregir hábitos bucales susceptibles de causar o exacerbar maloclusiones.

LEARNING OUTCOMES

The theoretical classes should make the students know the analysis and interpretation of the records for the diagnosis and orthodontic treatment planning. Also, the student must know the biological bases of development of teeth and bone as the development of oral habits, malocclusion and knowing how to apply appropriate therapy to each of them.

Secondly, the realization of practical classes under proper supervision of the teachers, should make students acquire sufficient knowledge to conduct an appropriate radiological and cephalometric analysis with different cephalometric techniques, an analysis of study models from the diagnostic point of view, wire-bending of different thicknesses, and finally making removable orthodontic appliances with all its components.

DESCRIPTION OF CONTENTS

1. INTRODUCTION AND DIAGNOSIS

1. Orthodontics: concept and objectives.
2. Historical evolution of orthodontics.
3. Nature and morphology of normocclusion.
4. Classification and characterization of Malocclusion.
5. Etiology and genetics of Malocclusion.
6. Medical history and examination in orthodontics.
7. Analysis of study cast models 1.
8. Odontometric analysis.
9. Analysis of the study models 2.
10. Facial morphological analysis 1. Esthetics assessment: forehead and profile.
11. Facial morphological analysis 2. Dentolabial dynamic analysis.
12. Pathophysiology of peridental soft tissues

2. ERUPTION

13. The formation of the dentition.
14. Mechanisms of tooth eruption.
15. Pathophysiology of the eruption.
16. Mixed dentition. First period of Tooth Replacement.
17. The mixed dentition. Second replacement period.
18. Eruption abnormalities 1.
19. Eruption abnormalities 2.
20. Maturation and aging of the dentition.

3. CEPHALOMETRY

21. Introduction to cephalometry.
22. Cephalometric methods. Basic concepts.
23. Lateral cephalometric anatomy.
24. Cephalometric methods. Norma Lateralis.
25. Cephalometric overlap.
26. Other types of cephalometric and imaging radiography.

4. DENTAL MOVEMENT AND BIOMECHANICS

27. Dental movement.
28. Variability factors of tooth movement.
29. Biomechanics 1. Basic concepts. Forces and vectors. Control of tooth movement. Systems of forces. Types of controlled movements.
30. Biomechanics 2. Static equilibrium. Active elements. Orthodontic metallurgy.
31. Biomechanics 3. Passive elements. Types. First, second and third order torques. Friction.
32. Biomechanics 4 Anchoring. Concept. Historical evolution. Classification. Anchor sources. Clinical application.

5. TREATMENT

33. Treatment plan. General considerations.
34. Functional alterations.
35. Treatment of Class I.
36. Treatment of Transverse Malocclusions.
37. Overbite.
38. Treatment of open bite.
39. Treatment of Sagittal Malocclusions. Class II, division 1.
40. Treatment of Sagittal Malocclusions. Class II, division 2.
41. Therapeutic extraction.
42. TMJ Alterations in the child.
43. Treatment of Sagittal Malocclusions. Class III.
44. Materials in Orthodontics.

45. Removable Plates.
46. Fixed appliances, PART 1.
47. Fixed appliances, PART 2.
48. Diagnostic synthesis. Steiner box. List of problems. VTO.
49. New techniques in orthodontics. Part I: Orthodontics with clear aligners. Digital fabrication of orthodontic appliances.
50. New techniques in orthodontics. Part II: Intraoral scanners. CBCT. 3d print.
51. Hygiene and prophylaxis in orthodontics.

6. GROWTH

52. Growth. Generalities.
53. Types of craniofacial growth.
54. Determining factors of growth.
55. Naso-Maxillary complex Growth.
56. Jaw Growth.
57. Integration of Dento-facial Growth and Etiology of Bone Dysplasias.
58. Patients with cleft lip and palate and other more frequent craniofacial malformations.
59. Orthopedic Devices.
60. Orthopedics of the jaw.
61. Classification of Dento-facial deformities.
62. Growth alterations of the jaw.

7.

8.

9. PRACTICES

PRACTICE 1. Wire bending.
PRACTICE 2. Ideal arches.
PRACTICE 3. Adamss hook.
PRACTICE 4. Vestibular arch.
PRACTICE 5. Analysis of cast models.
PRACTICE 6. Analysis of models in mixed dentition.
PRACTICE 7. Analysis of models in permanent dentition.
PRACTICE 8. Facial analysis.
PRACTICE 9 AND 10. Predetermination assembly (set up).
PRACTICE 11. Hawley's plate.
PRACTICE 12. Cephalometric anatomy.
PRACTICE 13. Steiner's cephalometric analysis.
PRACTICE 14. Ricketts cephalometric analysis.
PRACTICE 15. Diagnosis of a complete clinical case

PRACTICE 16. Diagnosis of a complete clinical case
PRACTICE 17. Diagnosis of a complete clinical case.
PRACTICE 18. Placement of metal brackets.
PRACTICE 19. Indices for determining the need for treatment: DAI and IOTN.
PRACTICE 20. Panoramic X-rays.

10. SEMINARS

Seminar Eruptive Pathology I.
Seminar Eruptive Pathology II.
Seminar on transversal malocclusions.
Vertical Malocclusions Seminar.
Seminar Orthopedic treatment of class III malocclusions.
Seminar Orthopedic treatment of class II malocclusions.
CBCT Seminar.
Fixed Equipment Seminar: TIP-EDGE.
Fixed Appliance Seminar: SELF-LIGGED Brackets.
Seminar Fixed Equipment: Straight arch.
TMJ Treatment Seminar.

WORKLOAD

ACTIVITY	Hours	% To be attended
Classroom practices	80,00	100
Theory classes	66,00	100
Laboratory practices	34,00	100
Development of group work	10,00	0
Development of individual work	10,00	0
Study and independent work	50,00	0
Readings supplementary material	20,00	0
Preparation of evaluation activities	20,00	0
Resolution of case studies	10,00	0
TOTAL	**300,00**	

TEACHING METHODOLOGY

1. THEORETICAL CLASSES: 3 hours per week throughout the course. The class is anoral exposure by the teacher of basic and new concepts.It will be done through active participation of students to facilitate their knowledge acquisition.

2. PRACTICAL CLASSES: 3 hours per week throughout the course. Groups will be of 40 students Practices arepreferably a training activity aimed to the practical application of theoretical knowledgeand training in some necessary orthodontics skills.The student will have a practical guide (teacher)who will facilitate the work and monitor the content of thepractices clearly and simply.

3. LABORATORY CLASSES: 2 hours per week during the second semester.Groups will be of 16 students who will diagnose cases with complete records and draw up various treatment plans that will be presented to their peers and discussed collectively in class. This type of exerciseis also made in the subject of Orthodontics II. Moreover, the possibilities and limitations of treatment procedures will be discussed in the study of the clinical cases. It may also carry out a monograph.

We intend to have a program with some scope for adaptation to the evolution of each concrete course.

EVALUATION

Written partial exam of multiple-choice test questions in January. Eliminate subject from a grade greater or equal to 70% of the total questions.

Final written exam of multiple-choice test questions on first call and on second call.The final grade will be the average between the scores of the theoretical exams (60%), the grade obtained in the participation in seminars (10%) and the obtaining of the

skills assessment in the practical and laboratory sessions (30%).

It is a requirement to access the advance notice of this subject, that the student has completed the use of all their practices.

Students are reminded of the great importance of carrying out evaluation surveys of all the teaching teachers of this subject

REFERENCES

Basic

- Ortodoncia. Principios y técnicas actuales Graber/Vanarsdall/Vig 5ª Edición
- Ortodoncia Contemporánea, 5 ª edición Autor (s): Proffit/Campos/Sarver Fecha de publicación: 04 de mayo 2012 Pie de imprenta: Mosby ISBN: 9780323083171
- Ortodoncia clínica y terapéutica Jose Antonio Canut Brusola 2ª ed

Additional

- Biomecánica en ortodoncia clínica. Ravindra Nanda - 30/06/1998 - 308 páginas.

- Tratamiento Ortodóncico y Ortopédico Dentofacial Rakosi/Graber 2012.
- Biological Mechanisms of Tooth Movement Vinod Krishnan y Zeed Davidovitch 2009.