

**COURSE DATA****Data Subject**

<b>Code</b>	34718
<b>Name</b>	Dental pathology, conservative dentistry and endodontology I
<b>Cycle</b>	Grade
<b>ECTS Credits</b>	12.0
<b>Academic year</b>	2022 - 2023

**Study (s)**

<b>Degree</b>	<b>Center</b>	<b>Acad. year</b>	<b>Period</b>
1206 - Degree in Dentistry	Faculty of Medicine and Odontology	3	Annual

**Subject-matter**

<b>Degree</b>	<b>Subject-matter</b>	<b>Character</b>
1206 - Degree in Dentistry	20 - Dental pathology, conservative dentistry and endodontics	Obligatory

**Coordination**

<b>Name</b>	<b>Department</b>
LLENA PUY, MARIA DEL CARMEN	131 - Stomatology

**SUMMARY**

This topic: "Dental Pathology, Conservative Dentistry and Endodontics I" is the first part of a mandatory topic placed in both the third and fourth academic years in the pregraduate studies in Dentistry at our university. It is included in the group of specific topics related to dental pathology and therapy.

It has two parts: dental pathology and conservative dentistry, which occur sequentially. So, after having, previously, knowledge about dental pathology, learning about dental conservative treatments begin. Only having passed this first part of this biannual topic it is possible to begin the studies in the second part (in the 4th year).

Contact with teeth pathology begins in this topic, mainly focused in its clinical manifestations and in its basic diagnostic procedures. Operatory field management and the use of basic and common therapeutic instruments and devices are a relevant part of the contents.

Dental students will get competences in clinical assessment of dental pathology, specially the most prevalent one, and in its conservative treatment.



## PREVIOUS KNOWLEDGE

### Relationship to other subjects of the same degree

#### 1206 - Degree in Dentistry :

R4-OBLIGATION TO HAVE SUCCESSFULLY COMPLETED THE COURSE

34704 - Biomaterials and ergonomics I

34705 - Biomaterials and ergonomics II

#### 1210 - Grado de Odontología 2012 :

34704 - Biomaterials and ergonomics I

34705 - Biomaterials and ergonomics II

### Other requirements

It is recommended to review some contents from related topic, for instance: dental anatomy, dental histology, radiology, pathology, dental materials and ergonomics.

## OUTCOMES

### 1206 - Degree in Dentistry

- Obtain and elaborate a clinical history with relevant information.
- Saber realizar un examen bucal completo, incluyendo las oportunas pruebas radiográficas y de exploración complementarias, así como la obtención de adecuadas referencias clínicas
- Tener capacidad para elaborar un juicio diagnóstico inicial y establecer una estrategia diagnóstica razonada, siendo competente en el reconocimiento de las situaciones que requieran una atención odontológica urgente.
- 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.
- Conocer los procedimientos y pruebas diagnósticas clínicas y de laboratorio, conocer su fiabilidad y validez diagnóstica y ser competente en la interpretación de sus resultados.
- Identificar el principal motivo de consulta y la historia de la enfermedad actual. Realizar una historia clínica general del paciente y una ficha clínica que refleje fielmente los registros del paciente.
- Reconocer la normalidad y la patología bucal, así como la evaluación de los datos semiológicos.
- Tomar e interpretar radiografías y otros procedimientos basados en la imagen, relevantes en la práctica odontológica.
- Manejar, discriminar y seleccionar los materiales e instrumentos adecuados en odontología.
- Realizar procedimientos estéticos convencionales desde una perspectiva multidisciplinar.
- Conocer los biomateriales dentales: su manipulación, propiedades, indicaciones, alergias, biocompatibilidad, toxicidad, eliminación de residuos e impacto ambiental.
- Conocer y usar el equipamiento e instrumentación básicos para la práctica odontológica.
- Proporcionar un enfoque global de los cuidados orales y aplicar los principios de promoción de la salud y prevención de las enfermedades bucodentarias.
- Realizar tratamientos básicos de la patología buco-dentaria en pacientes de todas las edades. Los procedimientos terapéuticos deberán basarse en el concepto de invasión mínima y en un enfoque global integrado del tratamiento buco-dental.
- Determinar e identificar los requisitos estéticos del paciente y de las posibilidades de satisfacer sus inquietudes.
- Tratar traumatismos dento-alveolares en denticiones temporal y permanente.



- Valorar y tratar al paciente con caries su otra patología dentaria no cariosa y ser capaz de utilizar todos los materiales encaminados a restaurar la forma, función y la estética del diente en pacientes de todas las edades.
- Tratar operatoriamente los procesos destructivos y las lesiones traumáticas dento-alveolares.
- Realizar tratamientos endodóncicos y aplicar procedimientos para preservar la vitalidad pulpar.
- Realizar las radiografías necesarias en la práctica odontológica, interpretar las imágenes obtenidas y conocer otras técnicas de diagnóstico por imagen que tengan relevancia.
- Identificar y atender cualquier urgencia odontológica.

### **1.- Dental pathology learning results.**

- 1.1.- To write down a clinical history, including: relevant personal data, pertinent aspects from the medical history and data related to dental pathology.
- 1.2.- To select adequate diagnostic tools in each clinical situation.
- 1.3.- To detect patient's dental symptomatology and semiology.
- 1.4.- Detection of the most prevalent dental pathology.
- 1.5.- Identify the following dental pathology: teeth infective pathology, non-infective and progressive dental destructions, developmental teeth pathology, pathology of tooth's color, dental traumatology, pathological growth of the dental tissues and clinical local or regional complications of dental pathology.
- 1.6.- To assess a diagnosis.
- 1.7.- To assess the prognosis of dental pathology.
- 1.8.- Organization of a treatment plan, considering the different therapeutic alternatives.
- 1.9.- To communicate the diseases' characteristics to the patient as well as the possibilities of treatment.

### **2.- Conservative dentistry learning results.**

- 2.1.- To organize the operative room for an dental actuation related to dental pathology and therapeutics.
- 2.2.- To do a clinical ergonomic work.
- 2.3.- To control operative field illumination.
- 2.4.- Isolation of the dental operative field.
- 2.5.- Dental instruments and materials selection for each kind of operative action.
- 2.6.- To treat caries disease in a global way: detection, ethiological and clinical diagnosis, Medical and chirurgical treatment and dental Health maintenance.
- 2.7.- To identify and use specific dental instruments for the dental therapeutic.
- 2.8.- Dental materials manipulations (those related to dental therapy).
- 2.9.- To prepare dental therapeutic cavities and its fillings with dental amalgam and composite resins.



- 2.10.- To use different bonding materials and techniques, depending on the different clinical situations.
- 2.11.- To assess the treatment of a dental traumatic injury.
- 2.12.- To reconstruct dental morphology and function after a root canal treatment.
- 2.13.- To understand dental needs in each patient.
- 2.14.- To adapt diagnostic and treatment procedures to the individual conditions of each patient.

### **3.- Education learning results.**

- 3.1.- To use CITs in the learning period of this topic.
- 3.2.- To use e-learning.
- 3.3.- To work with other people in the clinical work and in the preparation of scientific actions.
- 3.4.- To develop an experimental work or a bibliographic research related to the contents of this topic, including its written and public oral presentation (following the characteristics of a scientific congress).
- 3.5.- To get self-learning skills and to use tools for a future follow-up formation.
- 3.6.- To collaborate with other colleagues in Dentistry in a multidisciplinary way.

## **DESCRIPTION OF CONTENTS**

### **1. DENTAL PATHOLOGY (23 Lessons)**

- 1.A.1.- Introduction to Cariology. Disease general trends. Bases for caries treatment.
- 1.A.2.- Biofilms related to caries ethiology.
- 1.A.3.- Dietary components related to caries ethiology.
- 1.A.4.- Structural changes in the caries lesion.
- 1.A.5.- Interaction between dental tissues and oral environment.
- 1.A.6.- Clinical manifestations of caries. Bases for diagnosis. Prognosis. Basic diagnosis: assessing symptoms and clinical signs of the caries disease. Dental examination. Equipment and systematic procedure.
- 1.A.7.- Radiological diagnosis of caries lesions. Other diagnostic techniques.
- 1.A.8.- Reactive development of dentin and cementum.
- 1.A.9.- Neoformation of dental tissues.
- 1.A.10.- Dental tissues loss by acids, contact with other teeth, extraoral objects (erosion attrition abrasion) and others.
- 1.A.11.- Dental tissues loss from a biological ethiology: dental resorption.
- 1.A.12.- Anomalies in dental morfodiferentiation.

### **2.**





- 1.A.13.- Anomalies in dental histodifferentiation.
- 1.A.14.- Tooth discoloration.
- 1.A.15.- Dental pulp pathology.
- 1.A.16.- Periapical pathology.
- 1.A.17. Dental traumatic injuries: classification, etiology, epidemiology, general diagnosis, changes in the pulp-dentin complex, periodontal complications, healing process.
- 1.A.18.- Coronal fractures. Infracture. Traumatic coronal injuries involving pulp extension. Root-crown fractures: with and without pulp extension.
- 1.A.19.- Root fractures: prognosis, splint techniques, treatment plan related to the clinical type and situation of the injury.
- 1.A.20.- Dental traumatic injuries with periodontal complications. Concussion. Subluxation. Luxation. Avulsion. Reimplantation. Associated traumatic lesions in the maxillary bones, oral mucosa and gums.
- 1.A.21.- Prevention of dental trauma. Mouthguards. Directions. Design. Use Types protectors. Technical clothing.
- 1.A.22.- Dental traumatic injuries complications: calcification, necrosis, resorption, discoloration, ankylosis and influences on dental development. Prognosis in dental traumatology.
- 1.A.23.- Therapeutic guide for dental traumatic injuries.

### **3. DENTAL PATHOLOGY Practical contents (pre-clinic and clinic)**

- 1.B.1.- How to obtain clinical data. The first contact with the patient. Interview. Visual examination, Oral inspection. Radiological status assessment. Clinical History. Complementary diagnostic techniques.
- 1.B.2.- Detection and assessment of dental caries. Location, extension and complications. Symptomatology and semiology. Diagnostic procedures.
- 1.B.3.- Clinical diagnosis of non-infective nor traumatic dental pathology. Diagnostic procedures.
- 1.B.4.- Clinical diagnosis of traumatic injuries. Diagnostic techniques. Prognosis and treatment plan assessment.

### **4. OPERATIVE DENTISTRY (23 Lessons)**

- 2.A.1.- Organization of the operative field and the working area. Illumination of the operatory room. Isolation of the dental operative field: materials, instruments and techniques.
- 2.A.2.- Specific terminology. Teeth identification. Cavity classification. Description of a therapeutic dental cavity. Dental fillings.
- 2.A.3.- Hand cutting instruments for dental hard tissues in Operative Dentistry. Characteristics and techniques.
- 2.A.4.- Rotary cutting dental instruments.
- 2.A.5.- Basic principles of operative dental therapy.
- 2.A.6.- Clinical phases in tooth restoration with composite I. Selection of the color of the composite. Removal of damaged tissues. Bezels, types and indications. Acid etching. Bonding agents.
- 2.A.7.- Clinical phases in dental restoration with composite II. Insertion of the composite. Polymerization. Finishing and polishing.
- 2.A.8.- Treatment with composite resins in posterior teeth. Occlusal, vestibular, vestibular occlusus cavities.
- 2.A.9.- Treatment with composite resins in posterior teeth. Proximal occlusus cavities.
- 2.A.10.- Matrices in the posterior sector, types, mode of use and applications
- 2.A.11.- Adhesive systems in operative dentistry I.
- 2.A.12.- Adhesive systems in operative dentistry II.
- 2.A.13.- Operative dentistry with composite resins. Selection of the material.
- 2.A.14.- Treatment of lesions in anterior teeth with composite resins. Types of preparations Matrices for composites in the previous sector.
- 2.A.15.- Treatment of lesions in anterior teeth with composite resins. Color selection. Insertion of the composite. Finish and polish.
- 2.A.16.- Treatment of large dental destructions in vital teeth by direct technique.
- 2.A.17.- Dental reconstructions by indirect and semi-direct technique.
- 2.A.18.- Operative dentistry with glass ionomers and other bioregenerative materials.



**5.**

- 2.A.19.- Treatment of large dental destructions in non-vital teeth
- 2.A.20.- Minimally invasive dental therapy.
- 2.A.21.- Maintenance of the restorative treatment. Criteria for replacement or repair of restorations.
- 2.A.22.- Clinical protocol for the treatment of deep caries lesions I
- 2.A.23.- Clinical protocol for the treatment of deep caries lesions II.

**6. OPERATIVE DENTISTRY Practical contents (pre-clinical and clinical).**

- 2.B.1.- Organization of instruments, equipment and working area for Operative Dentistry. Ergonomic work.
- 2.B.2.- Identification, selection and clinical use of dental materials and instruments in Operative Dentistry.
- 2.B.3.- Diagnostic tools use. Assessment of treatment plans.
- 2.B.4.- Isolation of the dental operatory field. Salivary control.
- 2.B.5.- Restorative dental treatments with composite resins.
- 2.B.6.- Clinical use of glass ionomers and other bioregenerative materials.
- 2.B.7.- Placement of temporary fillings.

**WORKLOAD**

ACTIVITY	Hours	% To be attended
Odontology practices	65,00	100
Laboratory practices	60,00	100
Theory classes	52,00	100
Classroom practices	3,00	100
Attendance at events and external activities	4,00	0
Development of individual work	18,00	0
Study and independent work	46,00	0
Readings supplementary material	4,00	0
Preparation of evaluation activities	20,00	0
Preparing lectures	10,00	0
Preparation of practical classes and problem	16,00	0
Resolution of online questionnaires	2,00	0
<b>TOTAL</b>	<b>300,00</b>	

**TEACHING METHODOLOGY**

TEACHING METHODOLOGY



The activities will be scheduled in the first days of September, before the beginning of the academic course, This enhance personal distribution of time and the possibility of preparing the theoretical and practical contents in a previous way. Theoretical lessons, twice a week, will highlight the practical contents through images, clinical cases and explanation of diagnostic and therapeutic techniques. Bibliographic references will be supplied. Practical activities will have a pre-clinical component and a clinical one. The first will be focused to dental pathology during the first half of the academic year and to operative dentistry during the second one. Skills will be developed through simulation models, initially, in a second period, there will be clinical practice, oriented, mainly, to basic contents as: working area, clinical history, detection and assessment of prevalent dental diseases and using diagnostic techniques (clinical interview, dental examination, dental radiology, pulp vitality tests and others). Students will contact with simple dental restorative treatments. Clinical practice will be done in two places: the Dental Clinic at the “Fundació Lluís Alcanyís” (Universitat de València) and in Dental Units at the Health Centers in the Public Health Service net.

Before the treatment of patients begins, the student must have passed an evaluation test in which it will be required to have a basic knowledge of the diagnostic and therapeutic procedures that he/she will perform with patients. Those who do not pass it or do not perform it will not be able to treat patients as an operator, only as an assistant.

During the academic course there will be three seminars on pulp-dentin complex diagnosis and treatment, through oral presentations of finished clinical cases, so students can learn from different clinical situations. Students will be encouraged to develop a scientific work collaborating with other colleagues in the field of dental pathology and therapeutics. An experimental or a bibliographic research will be done in small groups, guides by a professor. These work will be presented is the “University Meeting on Dental Pathology and Therapeutics” together with the 4th-year students, where students will defend in a public session their oral presentations (10 minutes followed by a short period of questions), simulating the activity of a scientific congress. In this Meeting , an invited lecturer will participate. New CITs will be included in the teaching-learning period, as far as possible. E-learning will be developed through the “Virtual Classroom” platform.

## EVALUATION

EVALUATION In this topic, evaluation will be done as follows.

1.- Written test. Quiz with 50 multiple-choose questions. This numerical formulation will be used to measure the results:  $X = A - (E \cdot K)$ , when X is the obtained qualification (avoiding random answers), A is the number of correctly answer items, E is the number of wrongly answered or not answered items and k is  $1/n-1$  (n is the number of possible answers in each question -5-). Students pass the test when  $X=25$ .



2.- Practical evaluation. Continuous qualification in each practical activity. When the written test has been passed, an average between the results of this test and the practical evaluation will be done and this will be the 90% of the final evaluation of the topic. Within the practical evaluation will include the note of the proof of evaluation prior to the beginning of the clinical practices.

The other 10% is the evaluation of the presentation at the "University Meeting on Dental Pathology and Therapeutics".

In order to access to an advance on the call of this subject, it is a requirement that the student has coursed with benefits all his/her practices.

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

## REFERENCES

### Basic

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### Additional

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