VNIVERSITAT DE VALÈNCIA

# Course Guide
# 34718 Dental pathology, conservative dentistry and endodoncy I

## COURSE DATA

### DATA SUBJECT

**Code:** 34718
**Name:** Dental pathology, conservative dentistry and endodoncy I
**Cycle:** Undergraduate Studies
**ECTS Credits:** 12
**Academic year:** 2026-27

### STUDY (S)

| Degree | Center | Acad. year | Period |
|---|---|---|---|
| 1206 - Degree in Dentistry | Facultat de Medicina i Odontologia | 3 | Annual |

### SUBJECT-MATTER

| Degree | Subject-matter | Character |
|---|---|---|
| 1206 - Degree in Dentistry | Dental pathology, conservative dentistry and endodontics | COMPULSORY |

### COORDINATION

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## SUMMARY

This topic: "Dental Pathology, Conservative Dentistry and Endodontics I" is the first part of a mandatory topic placed in both the third and forth 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**

| | |
|---|---|
| Obligation to have previously passed the subject(s) | 34704 - Biomaterials and ergonomics I<br>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 ergonomy.

# COMPETENCES / LEARNING OUTCOMES

## 1206 - Degree in Dentistry

Conocer los biomateriales dentales: su manipulación, propiedades, indicaciones, alergias, bio-compatibilidad, toxicidad, eliminación de residuos e impacto ambiental.

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.

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 y usar el equipamiento e instrumentación básicos para la práctica odontológica.

Determinar e identificar los requisitos estéticos del paciente y de las posibilidades de satisfacer sus inquietudes.

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.

Identificar y atender cualquier urgencia odontológica.

Manejar, discriminar y seleccionar los materiales e instrumentos adecuados en odontología.

Obtain and elaborate a clinical history withrelevant information.

Proporcionar un enfoque global de los cuidados orales y aplicar los principios de promoción de la salud y prevención de las enfermedades bucodentarias.

Realizar las radiografías necesarias en la práctica odontológica, interpretar las imágenes obtenidas y conocer otras técnicas de diagnóstico por imagen que tengan relevancia.

Realizar procedimientos estéticos convencionales desde una perspectiva multidisciplinar.

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.

Realizar tratamientos endodóncicos y aplicar procedimientos para preservar la vitalidad pulpar.

Reconocer la normalidad y la patología bucal, así como la evaluación de los datos semiológicos.

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.

Tomar e interpretar radiografías y otros procedimientos basados en la imagen, relevantes en la práctica odontológica.

Tratar operatoriamente los procesos destructivos y las lesiones traumáticas dento-alveolares.

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.

## 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 atrition abrasion) and others.
1.A.11.- Dental tissues loss from a biological ethiology: dental resorption.
1.A.12.- Anomalies in dental morfodiferentiation.

1.A.13.- Anomalies in dental hystodiferentiation.

1.A.14.- Tooth discoloration.
1.A.15.- Dental pulp pathology.
1.A.16.- Periapical pathology.
1.A.17. Dental traumatic injuries: classification, ethiology, epidemiology, general diagnosis, changes in the pulp-dentin complex, periodontal complications, healing process.
1.A.18.- Coronal fractures. Infraction. 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. Concusion. 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, anquilosis and influences on dental development. Prognosis in dental traumatology.
1.A.23.- Therapeutic protocols for traumatic injuries to teeth. In office or in hospital operating theatre setting.

## 2. 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 an 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.

## 3. OPERATIVE DENTISTRY (23 Lessons)

2.A.1.- Organization of the operative field and the working area. Illumination of the operatory room. Isolament 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 restaurative dental therapy. In office or in hospital operating theatre setting.
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.

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.

## 4. 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.- Isolament 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

## PRESENCIAL ACTIVITIES

| Activity | Hours |
|---|---|
| Theory | 52,00 |
| Odontology practices | 65,00 |
| Laboratory | 60,00 |
| Classroom practices | 3,00 |
| **Total hours** | **180,00** |

## NON PRESENCIAL ACTIVITIES

| Activity | Hours |
|---|---|
| Attendance at other activities | 4,00 |
| Individual or group project | 18,00 |
| Independent study and work | 50,00 |
| Preparation of lessons | 26,00 |
| Preparation for assessment activities | 22,00 |
| Resolution of case studies | 0,00 |
| **Total hours** | **120,00** |

## 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 Primary Care Centers.

Before patient treatment begins, students must have passed an assessment test that will require basic knowledge of the diagnostic and therapeutic procedures they will perform on patients. Those who do not pass or complete the test will not be allowed 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. In all teaching areas, the gender perspective and respect for diversity will be taken into account. Likewise, the Sustainable Development Goals (SDGs) will be incorporated to the extent posible.

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## EVALUATION

1.- Written exam. 50 multiple choice questions. For the correction of this exam the following formula will be used

formula X = A-(E-K), where X is the score obtained (correcting for randomness), A is the number of items answered correctly, E is the number of items answered incorrectly or not answered and k is the number of items answered incorrectly or not answered and k is the number of items answered correctly.

A is the number of items answered correctly, E is the number of items answered incorrectly or not answered and k corresponds to 1/n-1, where n is the number of distractors (5). The pass mark is X=25.

2.- Practical assessment: continuous assessment of the practicals. In the case of passing the written exam, an average of the grade of the written exam will be the grade of the written exam will be averaged with the practical grade, and the result will constitute 90% of the overall grade.

Throughout the course, tests will be carried out during the classes, which will be assessed in the final grade with 10% that will be assessed in the continuous assessment of the practical component of the subject. The practical assessment will also include the grade of the evaluation test before the start of the clinical practicals. All of this will be assessed in 90% of the final mark, which constitutes the combined theoretical and practical component of the mark.

Attendance at the practical activities is compulsory. Students will be considered to have fulfilled this requirement if they have attended at least 80% of these activities and have adequately justified their inability to attend the remaining sessions due to force majeure.

The remaining 10% will be the grade of the paper presented for the "University Meeting on Dental Pathology and Therapeutics".

Students are reminded of the great importance of completing the evaluation surveys of all the teaching staff of this subject.

## REFERENCES

- Albers HF. Tooth-colored Restoratives. Principles and Techniques. 9th ed. London: BC Decker Inc. 2002.
- Andreasen JO. http://www.dentaltraumaguide.org.
- Brenna F, et al. Odontología Restauradora. Procedimientos terapéuticos y perspectivas de futuro. Elsevier. 2010.

- Fejerskov O, Kidd E. Dental Caries. The Disease and its Clinical Management. Oxford: Blackwell Munksgaard. 2ª Ed. 2008.
- Forner L, et al. Atlas de Patología Dental. Moncada: Servicio de Publicaciones UCH-CEU. 2004.
- Llena MC. Instrumental en Odontología Conservadora y en Endodoncia. Barcelona: Labor. 2008.
- Winkler R. Teoría y práctica del dique de goma. Barcelona: Mosby/Doyma Libros. 1994.
- García Barbero J. Patología y terapéutica dental. Operatoria dental y Endodoncia. Elsevier. 2ª Edición. 2015.
- Andreasen JO, Andreasen FM, Anderson L. Traumatic injuries to the teeth. Wiley Blackwell.2019.
- Duran-Sindreu FS. Manual de Endodoncia. La guía definitiva. ISBN: 9788418706905. Editorial Edra. 2022

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