

Master's Degree in Dentistry and Dental Prosthetics 2023/2024

Integrated Teaching: Odontostomatological Disciplines I

Scientific Disciplinary Sector: MED/28

Responsible Professor: Prof. [Manuele Mancini](mailto:manuele.mancini@unicamillus.org); e-mail: manuele.mancini@unicamillus.org

Number of University Educational Credits (CFU): 21

Student reception: by appointment

Module: Restorative

Scientific Disciplinary Sector: MED/28

Number of University Educational Credits (CFU): 5

Professor: Prof. [Manuele Mancini](mailto:manuele.mancini@unicamillus.org); e-mail: manuele.mancini@unicamillus.org

Module: Periodontology

Scientific Disciplinary Sector: MED/28

Number of University Educational Credits (CFU): 4

Professors:

- Prof. Francesco Germano (2 CFU); e-mail: francesco.germano@unicamillus.org
- Prof. [Marco Clementini](mailto:marco.clementini@unicamillus.org) (2 CFU); e-mail: marco.clementini@unicamillus.org

Module: Prosthodontics

Scientific Disciplinary Sector: MED/28

Number of University Educational Credits (CFU): 5

Professors:

- Prof. [Giovanni De Vico](mailto:giovanni.devico@unicamillus.org) (3 CFU); e-mail: giovanni.devico@unicamillus.org
- Prof. [Dario Severino](mailto:dario.severino@unicamillus.org) (2 CFU); e-mail: dario.severino@unicamillus.org

Module: Professional Training Activities of Restorative

Scientific Disciplinary Sector: MED/28

Number of University Educational Credits (CFU): 2 CFU (1 CFU in hospital facilities operating in close collaboration with UniCamillus)

Professor: Prof. [Manuele Mancini](mailto:manuele.mancini@unicamillus.org) (1 CFU); e-mail: manuele.mancini@unicamillus.org

Module: Professional Training Activities of Periodontology

Scientific Disciplinary Sector: MED/28

Number of University Educational Credits (CFU): 3 CFU (1 CFU in hospital facilities operating in close collaboration with UniCamillus)

Professors:

- Prof. Francesco Germano (1 CFU); e-mail: francesco.germano@unicamillus.org
- Prof. [Marco Clementini](mailto:marco.clementini@unicamillus.org) (1 CFU); e-mail: marco.clementini@unicamillus.org

Module: Professional Training Activities of Prosthodontics

Scientific Disciplinary Sector: MED/28

Number of University Educational Credits (CFU): 2 CFU

Professors:

- Prof. [Giovanni De Vico](mailto:giovanni.devico@unicamillus.org) (1 CFU); e-mail: giovanni.devico@unicamillus.org
- Prof. [Dario Severino](mailto:dario.severino@unicamillus.org) (1 CFU); e-mail: dario.severino@unicamillus.org

PREREQUISITES

There are no prerequisites for the teaching of Odontostomatological Disciplines I. However, it is recommended to have basic knowledge of human and odontostomatological anatomy, histology, general physiology, microbiology and hygiene, dental materials and prosthetic technologies, in order to optimize learning and the achievement of specific objectives.

LEARNING OBJECTIVES

The purpose of the integrated teaching of Odontostomatological Disciplines I is to provide students the knowledge of the anatomy (macro and microscopic), physiology, pathology and therapy of teeth and periodontal tissues, useful to restore them with a conservative, periodontal and prosthetic approach.

LEARNING OUTCOMES

At the end of the integrated teaching, the student must be able to: describe the structures of teeth and periodontium, know the physiopathology of caries and periodontal disease, use the most suitable diagnostic tools for a correct diagnosis, choose the best conservative, periodontal and prosthetic therapy to correctly and lastingly rehabilitate the pathology that affects the tooth and the periodontal structures.

Knowledge and understanding

At the end of this integrated teaching the student will be able to know:

- The most suitable tools for a correct diagnosis in conservative dentistry, periodontics and prosthetics;
- The most suitable conservative and prosthetic restoration for the therapy of the hard tissues of teeth
- The definition and mechanism of formation of caries and periodontal disease
- The morphological and histological characteristics of dental and periodontal tissues
- The epidemiology and the different manifestations of caries and periodontitis
- The composition of bacterial plaque with the characteristics of the main bacteria involved in the development of periodontal disease
- The response of the body to the presence of periodontopathogenic bacteria
- Instruments and techniques useful in the non-surgical therapy of periodontitis
- The most suitable therapies and materials for prosthetic rehabilitation

Applying knowledge and understanding

At the end of the Odontostomatological Disciplines I integrated teaching, the student will be able to use the acquired knowledge for the understanding, diagnosis and treatment of dental and periodontal diseases with a conservative, periodontal and prosthetic approach, as fundamental requirements for carrying out the dental profession.

Communication skills

At the end of the teaching, the student must be able to use correct scientific terminology to describe the characteristics of the pathologies affecting the dental and periodontal tissues, describing the etiological agent and choosing the most suitable conservative, periodontal and prosthetic therapy.

Making judgments

The acquired knowledge given by the integrated teaching of Odontostomatological Disciplines I will prepare future graduates in Dentistry and Dental Prosthesis to carry out a correct diagnosis and choose the correct therapy in cases of pathologies affecting the dental and periodontal tissues.

Learning skills

At the end of the teaching the student must have learned an autonomous study and updating method, referring to several texts and bibliography articles.

COURSE SYLLABUS

Restorative

1. Introduction to Restorative Dentistry

- Presentation of the teaching, aims of restorative dentistry, objectives and goals, analysis of scientific literature, historical notes

2. Anatomy of the dental elements

- Macroscopic and microscopic evaluation of deciduous and permanent teeth
- Embryology and anomalies associated with the various stages of dentition (dentinogenesis and amelogenesis imperfecta, MIH, hypoplasia)
- Dental formula and nomenclature
- Teeth design and modeling

3. Caries

- Etiopathogenesis (diet, oral microflora, plaque, saliva, host predisposition)
- Epidemiology (DMFT index and WHO parameters)
- Histopathology and stages of caries
- Diagnosis (clinical, instrumental, radiographic examinations)
- Classifications
- Non-carious cervical lesions (abfraction, erosions, abrasions, hypersensitivity)

4. Pain management

- Anesthesia (materials and techniques)
- Medications (painkillers and post-op follow-up)

5. Instruments

- Diagnostic tools
- Cavity preparation instruments (hand-pieces, burs, hand instruments)
- Accessory tools for conservative reconstruction (matrixes, strips, wedges)
- Finishing and polishing tools (burs, polishers and pastes)

6. Adhesion and Adhesive Systems
 - Mechanism of adhesion (microscopic and macroscopic analysis)
 - Adhesive systems (classifications, chemical and physical aspects, laboratory tests)
 - Adhesive systems on the dental markets
7. Conservative restoration materials
 - Background
 - Metallic materials (amalgam, cohesive gold)
 - Composites (composition, evolution and classification, product category)
 - Compomers
 - Glass ionomer and reinforced glass ionomer cements
8. Conservative treatment of the carious lesion
 - Background
 - The rubber dam (instruments and mounting techniques)
 - Cavity preparation (principles, hand and rotary instruments)
 - Minimally invasive restorative
 - Products, finishing and polishing techniques for restorations
 - Maintenance of restorations
9. Direct restorations of the lateral-posterior sectors
 - Class I (modeling techniques)
 - Class II (matrixes, wedges and separating rings, modeling techniques)
10. Direct restorations of the anterior sectors
 - Principles of dental aesthetics and color in dentistry
 - Class III (Preparation and layering techniques)
 - Class IV (Preparation and layering techniques, reattachment of fragments)
 - Class V (Preparation and layering techniques)
 - Direct veneers
11. Sealing and sealants
12. Photo-curing lamps
 - Polymerization shrinkage and degree of conversion
 - Types of lamps (halogen, LED, polyLED, laser)
13. Indirect restorations of the anterior sectors
 - Veneers (analog and digital mock-up, materials, preparation and impression taking techniques, provisional restorations, techniques and materials for cementation)
14. Indirect restorations of the lateral-posterior sectors
 - Inlays (inlay, onlay, overlay, veneerlay, semi-direct technique, in-office technique, materials, preparation and impression taking techniques, temporary restoration, techniques and materials for cementation)
15. Pulp protection

- Biological principles and product category (pulp capping and pulp vitality, deep carious lesions, bioceramics and varnishes)
- 16. Temporary restorative materials
- 17. Vital tooth whitening
- 18. Dental traumatology
 - IADT classification and guidelines
 - Diagnosis and protocol
 - Rehabilitation techniques
- 19. Restoration of the endodontically treated tooth
- 20. Complex rehabilitations with conservative and adhesive techniques

COURSE SYLLABUS

Periodontology

1. Introduction to Periodontology.
 - Definition of periodontal disease, hints on periodontal tissues, the etiologic agent, host response, and the multifactorial nature of periodontitis
2. Periodontal Embryology, Anatomy and Histology.
 - Embryologic origin of periodontal tissues, embryologic development of the gingiva, periodontal ligament, cementum, and alveolar bone proper.
 - Macroscopic anatomy of the gingiva, microscopic epithelial and connective tissue features of the gingiva and oral mucosa.
 - Macroscopic and microscopic anatomy of deep periodontal tissues: cementum, periodontal ligament, and alveolar bone.
 - Anatomy of lymphatic, vascular and nervous tissues of periodontal tissues.
3. Epidemiology of Periodontal Disease.
 - Distribution of periodontal disease
 - Modifiable and non-modifiable risk factors
 - Multifactorial concepts of periodontitis.
4. Microbiology: plaque, bacteria, dental calculus
 - Description of bacterial plaque, changes in composition between physiological and pathological plaque, theories of pathogenicity of bacterial plaque.
 - Periodontal microbiology: description of major periodontopathogenic bacteria (characteristics, taxonomy, virulence factors), Koch, Evans and Socransky postulates for pathogen identification, pathogen complex theory, human and bacterial viruses in periodontal disease.
 - Dental calculus composition and characteristics
5. Pathogenesis Periodontal Disease.
 - Differences with other inflammatory diseases, clinical and histopathological features of periodontal disease, studies on progression from healthy gingiva to periodontitis.
 - Body response to periodontal disease, nonspecific and adaptive immune defense mechanisms.

- Description of cellular and humoral immune mechanisms.
- Description of major cytokines.
- 6. Classification of periodontal and periimplant diseases and conditions.
 - Non-plaque induced gingival lesions.
 - Gingivitis
 - Periodontitis
 - Systemic and Periodontal Diseases
 - Occlusal Trauma, Endo-Perio Injuries, Periodontal Abscesses, Gingival Recessions and Peri-Implant Disease
- 7. Periodontal Diagnosis and Prognosis.
 - Periodontal History
 - Periodontal Indices and Periodontal Record
 - Radiographic Examinations
- 8. Motivation, oral hygiene instruction
 - Instrumentation
 - Protocols
 - Outcomes
- 9. Supra-gingival instrumentation instrumentation, protocols, results
- 10. Sub-gingival instrumentation: instrumentation, protocols, results
- 11. Antiseptics, Systemic and local antibiotics: rationale, protocols, results

COURSE SYLLABUS

Prosthodontics

1. General introduction to Dental Prosthetics
 - The treatment plan
 - Principles of occlusion (RC and MI)
 - Patient classification
 - Diagnosis
 - Choice of finishing line and restoration material
 - Partial and total restorations
 - Adhesive and non-adhesive restorations
2. Preparation principles for full crowns
 - Calibrated reduction of the tooth
 - Wall retention concepts
 - Axial limit
 - Occlusal limit
 - Gingival limit (respect of the biological width)
 - Secondary retentions

3. Different designs of final preparation
 - Linear preparations
 - Area preparations
 - Mixed preparations
 - Different preparations
 - Diamond burs and rotary tools
4. Preparation principles for anterior partial restorations: Veneers
 - Mock-up and preview
 - Golden ratio and aesthetic information
 - Minimally invasive preparation
 - Field isolation
 - Adhesive cementation
5. Preparation principles for posterior partial restorations: Onlay-Overlay
 - Preparation
 - Field isolation
 - Adhesive cementation
6. Soft tissue retraction, repositioning and marginal finishing
 - Retraction cords
 - Sonic instruments
 - Fine grain burs
 - Hand chisels
7. Provisionalization
 - Short and long term
 - Direct and indirect provisional
 - Ion
 - The resin cycle
 - Diagnostic wax-up
8. Precision impression: Analog and Digital
 - Retraction cords
 - Radio-electro surgery
 - Chemical retraction
 - Impression materials
 - IOS
 - Facebow and articulator assembly
 - Vertical dimension and resin/wax check
9. Materials for the definitive restoration and try-in
 - Metallic materials

- Metal-free materials
 - Try-in of metallic structure
 - Try-in of the porcelain
 - Primary and secondary welding
 - Shade selection
 - Monolithic or stratified
10. Final cementation
- Zinc oxyphosphate cements
 - Adhesive cements
 - Glass ionomer cements
11. Reconstruction of the endodontically treated tooth
- Gold cast post
 - Adhesive post
 - Endodontic seal
 - Root canal cements
 - Ferrule effect

COURSE STRUCTURE

The teaching includes:

- 140 hours of lectures, (50 of Conservative, 40 of Periodontology and 50 of Prosthodontics) during which the concepts useful for the knowledge of the subject will be provided;
- 175 hours of Professional Training Activities (50 of Conservative, 75 of Periodontology and 50 of Prosthodontics) of which 125 hours (25 of Conservative, 50 of Periodontology and 50 of Prosthodontics) carried out in the phantom room, in which students will have the opportunity to apply the techniques acquired during the lectures, and 50 hours (25 of Conservative, 25 of Periodontology) in dental facilities where students will have the opportunity to assist the various clinical procedures on patients, discussing the treatment plan and the various therapeutic options with tutors.

COURSE GRADE DETERMINATION

The exam program coincides with the teaching programme. The vote will be expressed in thirtieths. The final evaluation of the student will take place through a written and oral test.

The **written test** consists of 30 multiple-choice questions (10 on conservative, 10 on periodontics, 10 on prosthodontics). Each correct answer corresponds to a score of +1 and each wrong or missing answer corresponds to a score of -0.5. The oral exam is accessed if a score of at least 18 is obtained. The written test lasts 60 minutes.

If the grade of the written exam is between 25 and 30, the student can decide to keep the grade or take the **oral exam**; for scores in the written exam, between 18 and 24, the oral exam is mandatory.

Each exam verifies the knowledge of the subjects being studied and the ability to relate and interpret the acquired concepts. The written test aims to verify the level of knowledge of both basic and

advance notions and the ability to logically connect the concepts. The oral test verifies what the student was able to show in the previous test, as well as ascertaining his ability to understand and explain concepts with language properties.

Overall, the exam will be evaluated according to the following criteria:

Unsuitable: Poor or lacking knowledge and understanding of the topics; limited capacity for analysis and synthesis, frequent generalizations of the required contents; inability to use technical language.

18-20: Just enough knowledge and understanding of topics, with obvious imperfections; just sufficient capacity for analysis, synthesis and independent judgement; poor ability to use technical language.

21-23: Sufficient knowledge and understanding of topics; sufficient capacity for analysis and synthesis with the ability to logically and coherently argue the required contents; sufficient ability to use technical language.

24-26: Fair knowledge and understanding of the topics; discrete capacity for analysis and synthesis with the ability to rigorously argue the required contents; Good ability to use technical language.

27-29: Good knowledge and understanding of required content; good capacity for analysis and synthesis with the ability to rigorously argue the required contents; good ability to use technical language.

30-30 cum laude: Excellent level of knowledge and understanding of the requested contents with an excellent capacity for analysis and synthesis with the ability to argue the requested contents in a rigorous, innovative and original way; Excellent ability to use technical language.

READING MATERIALS/BOOKLIST

Restorative

- Odontoiatria restaurativa. Procedure di trattamento e prospettive future, a cura di AIC (Accademia Italiana di Conservativa), 2016, *Ed. Edra*
- Odontoiatria restaurativa estetica, a cura di AIC (Accademia Italiana di Conservativa), 2021, *Ed. Quintessenza*

Periodontology

- Parodontologia clinica e implantologia orale, Lindhe J. & Lang N., *EdiErmes*
- Parodontologia clinica, Newman MG, Takei HH, Carranza FA, *Delfino Antonio Edizioni*
- Testo Atlante di Parodontologia e Implantologia, autori vari SIdP, *Ed. Quintessenza*

Prosthodontics

- Estetica e Precisione (D. Massironi, R. Pascetta, G. Romeo), *Ed. Quintessenza*.