

## Degree Course in Dentistry and Dental Prosthetics 2021/2022

**Integrated Course :** Diagnostic imaging and radiotetherapy

**CFU Number :** 6

**SSD :** MED/36

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### PREREQUISITES

For the Diagnostic Imaging and Radiotherapy module it would be desirable that the student knows the basics of anatomy and physiology, such as the different tissues, organs, apparatuses and the concept of homeostasis.

### LEARNING OBJECTIVES

The teaching of Diagnostic Imaging and Radiotherapy aims to make the student learn:

- the basic knowledge of physics and chemistry useful to understand the theoretical principles of radiological techniques used in general radiology and especially in oro-maxillo-facial diagnostics;
- the knowledge of the modalities of formation, transmission and especially the effects of radiation absorption and the rules of radioprotection;
- the recognition of anatomical structures in normal and pathological conditions;
- the main indications for the use of diagnostic imaging methods in all the pathologies of the oro-maxillofacial district and in the main pathologies of the cerebral, thoracic and abdominal district;
- the specific aspects of local and systemic pathologies that may affect the oral-maxillofacial district.

### LEARNING OUTCOMES

#### **Knowledges and comprehension skills**

Knowledge of the basics of diagnostic imaging: the student will learn the general and theoretical principles of radiological techniques used in general radiology and especially in oro-maxillofacial diagnostics.

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

- Know the principles of radiological techniques
- Know the effects of radiation absorption and radiation protection norms
- Describe the main anatomical structures of the oro-maxillofacial, cerebral, thoracic and

abdominal districts.

- Know the radiological aspect of the main pathologies of the oro-maxillo-facial, cerebral, thoracic and abdominal district.
- Know the main imaging of implantology.
- Know the radiological pictures after radiotherapy and chemotherapy
- Understand the main indications for the use of imaging of the oro-maxillofacial district

### **Applying knowledge and understanding skills**

The main objective of the Diagnostic Imaging and Radiotherapy course is to learn the main anatomical structures in normal and pathological conditions and the most important indications for the use of diagnostic imaging methods. At the end of the course the student will have acquired the tools to interpret radiological images and identify the best and appropriate diagnostic imaging procedure.

### **Communication Skills**

The student will be able to adequately describe a radiological image demonstrating that he/she has learned scientific language for a correct and rigorous communication.

### **Making judgements**

At the end of the course the student will be able to independently develop the logical procedures and strategies to perform diagnostic imaging methods and interpret them correctly. He will have acquired the ability to synthesize and correlate the various topics and to critically use radiological methods for the diagnosis of the main pathologies of the oro-maxillofacial district.

### **Learning skills**

At the end of the course the student will have developed the ability to investigate topics through the consultation of scientific literature.

## **COURSE SYLLABUS**

- Definition of radiology. Exposition of devices. Physics Recalls.
- RADIOLOGY- Radiological Semeiotics - Radiological Anatomy - Indication for investigation - Advantages/disadvantages
- CT - CT Semeiotics - CT Anatomy - Indication for investigation - Advantages/disadvantages
- MRI - MRI Semeiotics - MRI Anatomy - Indication for investigation - Advantages/benefits
- ECOGRAPHY - Semeiotics - Indication for investigation - Advantages/disadvantages
- 3D CONE BEAM Semeiotics - Indication for examination - Advantages/disadvantages
- Contrast media
- Formation and transmission of ionizing radiation
- Protection and legislation
- Techniques in dental radiology. Special projections and semeiotics
- Radiological anatomy of the facial bones
- Endoral and extraoral methods and teleradiography



- Dental anomalies, degenerative lesion of the teeth, oromaxillofacial malformations, alterations during eruption
- Dental caries, periodontal disease
- Cystic formations
- Odontogenic/non odontogenic tumors
- Fibro-osseous lesions
- Dental traumas
- Imaging of implantology
- Temporo mandibular joint imaging
- Salivary glands imaging
- Nuclear medicine and radiotherapy
- Radiological pictures after radiotherapy and chemotherapy
- Imaging in ENT pathologies: paranasal sinuses, larynx, pharynx and petrous rocks
- Imaging of OSAS
- Guidelines for thoracic pathologies
- Abdominal and pelvic pathologies guidelines
- Musculoskeletal pathology guidelines
- Lymphoproliferative pathologies guidelines
- Nervous system pathologies guidelines
- Endocrinology methodologies guidelines

### **COURSE STRUCTURE**

The course consists of frontal lessons, for a total of 60 hours. The teachers will use teaching tools such as presentations organized in powerpoint files with explicative diagrams, illustrations and images. Videos and animations will be used to integrate the processes described in class.

The frequency is mandatory.

### **COURSE GRADE DETERMINATION**

The examination consists of two parts: a written test and an oral test. The written consists of 30 multiple-choice questions, with one correct answer, on topics covered in class.

To access to the oral test, the student must have obtained at least 18/30. The written exam is a barrier test or selection; it is in the oral exam that the student is given the opportunity to demonstrate his preparation by discussing the topics of the course, to reason on issues related to radiology demonstrating that he has acquired the ability to express himself with an adequate scientific language. The final evaluation will be based mainly on the outcome of the oral test.

### **READING MATERIALS**

- Learning Radiology: Recognizing the Basics, 3rd edition, William Herring, Edited by Saunders.
- Oral Radiology. Principles and Interpretation, 7<sup>th</sup> Edition, by Stuart C. White and Michael J. Pharoah. Edited by Elsevier