

## COURSE SYLLABUS

### **Conventional Instruments and Analogical Systems**

2021-1-I0303D006-I0303D020M

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#### **Aims**

The course aims to provide students with knowledge of main conventional radiological equipment, its functioning and its physical and structural characteristics, including the knowledge of some important dedicated radiological systems.

#### **Contents**

The student will learn: physics X-ray interaction with matter; main components of conventional radiological equipment; physical and technological basis of diagnostic radiology

#### **Detailed program**

X-ray production and X-ray tubes. Characterization of an X-ray beam. X-ray– matter interaction and image production in conventional radiology.

Physical and technological basis of diagnostic radiology. Main components of a conventional radiological equipment and main types of radiological equipments.

Scattered radiation, beam-limiting devices: collimation, anti-scatter grids, X-ray film Sensitometric and photosensitometric apparatus. Intensifying screens. Physical principles of fluorescence. Characteristics of materials, speed classes, film-shield system. Image quality, MTF, how to measure MTF. Noise, Wiener spectrum. Synthetic quality indices.

## Prerequisites

Organs and Functions

## Teaching form

Lectures

## Textbook and teaching resource

F.MAZZUCATO: "Anatomia Radiologica. Tecniche e Metodologie in Radiodiagnostica" Ed.Piccin

Teachers will provide other educational material.

## Semester

Second semester

## Assessment method

Written test about the modules **Conventional Equipments and Analogic Systems** and **Digital Systems and Quality Controls** comprising multiple choice questions and exercises. The written test is evaluated with a mark ranging from 0 to 30. If the mark is superior to 18/30, the oral test will follow. The oral test consists in the evaluation of the knowledge acquired among the course topics through open questions.

### Written test:

7 open questions

4 questions with only one correct answer among 4

2 exercises

Oral discussion possibly related to the mistakes made during the written test.

## Office hours

By appointment required by mail

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