UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Conventional Instruments and Analogical Systems

2021-1-I0303D006-I0303D020M

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. Xray– 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. Intensifing screens. Physical principles of fluorescence. Characteristics of materials, speed classes, film-shield system. Image quality, MTF, how to measure MTF. Noise, Wiener spectrum. Syntetic 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