UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Diagnostic Imaging and Radiation Safety

2627-1-I0105D002-I0105D00204

Aims

The aim of this course module is to provide students with the main knowledge of diagnostic imaging methods and their use in the clinical setting, the principles of radiation physics, the biological effect of radiation, the mode of radioexposure and the related radiobiological risk, and the principles of radiation protection, particularly in the hospital setting.

Contents

Topics related to the main diagnostic methods used in clinical radiology and nuclear medicine will be covered, the general principles of radiation physics, the concept of biological risk from radiation, the modalities and effects of radiation exposure, the principles of radiation protection and the fundamental aspects of radiation protection legislation for workers will be illustrated, with particular regard to the working areas of radiology, nuclear medicine and radiotherapy.

Detailed program

Introduction to Diagnostic Imaging and Radiation Protection
Overview of equipment used in diagnostic imaging
Main imaging techniques and their most common clinical applications in radiology (planar radiography, angiography, CT, MRI, ultrasound) and nuclear medicine (scintigraphy, single photon emission tomography (SPET) positron emission tomography (PET))
General overview of ionising radiation and its radiobiological effect. Classification of irradiation damage.
Radiation exposure in Radiodiagnostics and Nuclear Medicine.
General principles of radiation protection.

The radiation protection of operators.
Patient radiation protection. Exposure of paediatric and child-bearing age patients.
Roles and responsibilities of health personnel in the context of radio-exposure.

Prerequisites

none

Teaching form

4 lessons of 2 hours each, delivered in face-to-face mode for the Monza site and in teledidactic mode for the Bergamo, Lecco and Sondrio sites; the teledidactic mode includes the lesson in progress ‘Direct’ and the list of the last lessons uploaded on the platform for consultation

Textbook and teaching resource

Slides of the lessons
Recommended book for consultations: F.Giovagnorio. Manuale di diagnostica per immagini nella pratica medica. Esculapio Ed. 2021

Semester

First year - First semester

Assessment method

A final written test with five multiple-choice questions, only one of which is correct, integrated into the Hygiene, Occupational Medicine and Medical Statistics examination. The knowledge acquired on the main diagnostic imaging investigations used in clinical settings, on radio-exposure and on radiation protection methods will be assessed.
There will be no ongoing examination during the course

Office hours

By appointment

Sustainable Development Goals

GOOD HEALTH AND WELL-BEING | QUALITY EDUCATION | GENDER EQUALITY