UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Instrumentation For Diagnostic Imaging and Radiotherapy

1920-2-H4102D014-H4102D042M

Aims

Knowledge on:

- X-ray based, US-based, Magnetic Resonance, Nuclear Medicine and hybrid diagnostic imaging instrumentation
- Radiotherapy instrumentation

Contents

Diagnostic imaging modalities and radiotherapy systems

Detailed program

Diagnostic imaging instrumentation:

- X-ray imaging: revision of physical principles and image formation; multislice CT, cone beam CT, mammography, angiography
- Magnetic Resonance Imaging: revision of physical principles and T1/T2 image formation; diffusion weighted and perfusion weighted MRI, fMRI, spectroscopy
- Echography: physical principles and image formation; echographic probes
- Nuclear Medicine Imaging: revision of physical principles and image formation; PET/CT and PET/RM hybrid instrumentation

Radiotherapy instrumentation:

- Linear accelerator and components
- Intensity Modulated Radiotherapy (IMRT), Image Guided Radiotherapy (IGRT), tomotherapy
- Cyber knife, gamma knife

Prerequisites

Physics basic knowledge

Teaching form

Lectures

Textbook and teaching resource

Slides presented during the course

Semester

Second semester of the second year

Assessment method

Two open questions of equal weight

Office hours

By appointment fixed by e-mail