**Level :** PhD

**Course title:** Radiation Physics for Medical Physicists

**Status:** elective

**ECTS:** 30

**Requirements:** Adequate Master degree

**Learning objectives**

Acquiring knowledge necessary to get general overview of the concept of radiation interaction in all medical applications of ionizing radiation, including diagnostics and therapy. To qualify students to be able to do dosimetric measurements in an adequate way to evaluate the effect of radiation on an individual during some of his medical applications for diagnostic or therapeutic purposes.

**Learning outcomes**

- General Skills:

Specific knowledge about all radiation sources used in medicine; mechanisms of radiation interactions with matter; methods by which radiation detection can be performed.

- Specific Competencies:

Student acquires the ability to perform complex dosimetric measurements in all diagnostic and therapeutic procedures in which radiation is used.

**Syllabus**

*Theoretical instruction:*

Atoms, particles and types of interactions, quantities describing the interaction of radiation with matter, interaction of charged particles with matter, interaction of photons with matter, propagation of neutron beam through matter, measurement of radiation, practical aspects of the application of ionization chambers and other dosimetric devices. Radiation sources frequently used in medical diagnostics and therapy.

*Practical instruction:*

Experimental exercises with various types of dosimetric devices and individual term paper.

**Literature**


1. Johns H. E. And Cunningham J. R. 1983: Physics of Radiology, Charles C Thomas Pub Ltd
2. Khan F. M. 2007: The Physics of Radiation Therapy-Lippincott Williams & Wilkins.
3. Attix F. H. 1986: Introduction to Radiological Physics Radiation Dosimetry-Wiley.


| **Weekly teaching load** | **Lectures:** 5 | **Exercises:** 15 |
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