

Study Programme: Physics		
Course Unit Title: Radiation Physics for Medical Physicists		
Course Unit Code: FD18RF		
Name of Lecturer(s): Full Professor Miodrag Krmar		
Type and Level of Studies: PhD Degree		
Course Status (compulsory/elective): Elective		
Semester (winter/summer): Winter		
Language of instruction: English		
Mode of course unit delivery (face-to-face/distance learning): Face-to-face		
Number of ECTS Allocated: 30		
Prerequisites: -		
<p>Course Aims:</p> <p>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 dosimetry 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.</p>		
<p>Learning Outcomes:</p> <ul style="list-style-type: none"> - General Skills: <p>Specific knowledge about all radiation sources used in medicine; mechanisms of radiation interactions with matter; methods by which radiation detection can be performed.</p> <ul style="list-style-type: none"> - Specific Competencies: <p>Student acquires the ability to perform complex dosimetry measurements in all diagnostic and therapeutic procedures in which radiation is used.</p>		
<p>Syllabus:</p> <p><i>Theoretical instruction:</i></p> <p>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 dosimetry devices. Radiation sources frequently used in medical diagnostics and therapy.</p> <p><i>Practical instruction:</i></p> <p>Experimental exercises with various types of dosimetry devices and individual term paper.</p>		
<p>Required Reading:</p> <ol style="list-style-type: none"> 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 Contact Hours:	Lectures: 5	Practical work: 15
<p>Teaching Methods:</p> <p>Lectures, seminars and practical work.</p>		
Knowledge Assessment (maximum of 100 points):		

Pre-exam obligations	points	Final exam	points
Active class participation	-	written exam	-
Practical work	10	oral exam	70
Preliminary exam(s)	-	
Seminar(s)	20		

The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.