

Course Unit Descriptor

<b>Study Programme:</b> Physics			
<b>Course Unit Title:</b> Radiation Dosimetry			
<b>Course Unit Code:</b> M18DOZ			
<b>Name of Lecturer(s):</b> Full Professor Nataša Todorović			
<b>Type and Level of Studies:</b> Master Academic Degree			
<b>Course Status (compulsory/elective):</b> Elective			
<b>Semester (winter/summer):</b> Summer			
<b>Language of instruction:</b> English			
<b>Mode of course unit delivery (face-to-face/distance learning):</b> Face-to-face			
<b>Number of ECTS Allocated:</b> 8			
<b>Prerequisites:</b> -			
<b>Course Aims:</b> Study of general principles of dosimetry and protection from ionizing radiation, radiation quantities and units, as well as the optimization of radiation protection.			
<b>Learning Outcomes:</b> General Skills: Radiation dosimetry is a subject in which students are introduced to the general principles of radiation dosimetry and regulations in this area. Specific Competencies: Gaining knowledge of: radiation protection, radiation spectrum, interaction of low-energy radiation with tissue, X-ray diagnostic methods, dose limits, optimization of radiation protection, regulation of radiation protection, radiation units.			
<b>Syllabus:</b> <i>Theory</i> Interaction of ionizing radiation with matter (interaction of a photons, interaction of neutrons, interaction of alpha and beta particles). Direct measurement of the absorbed dose (absorbed dose units). Exposition dose and measurement. The kerma concept. Determination of absorbed dose during the exposure (Absorbed dose in the air. Absorbed dose in other materials. Conversion factors) Comparison of electrons, photons and neutrons dosimetry. Dosimetry with ionization chamber. Chemical, thermoluminescence, photographic dosimetry. Dosimetry with scintillation detectors. Dosimetry in radiation protection. Equivalent dose. Quality factor. Effective dose equivalent. <i>Practice</i> Experimental and computational exercises.			
<b>Required Reading:</b> 1. Jacob Shaprio, Radiation Protection, Harvard University Press, ISBN0-674-00740-9, 2002.			
<b>Weekly Contact Hours:</b>	<b>Lectures:</b> 3	<b>Practical work:</b> 2	
<b>Teaching Methods:</b> Lectures, seminars and practical work.			
<b>Knowledge Assessment (maximum of 100 points):</b>			
<b>Pre-exam obligations</b>	points	<b>Final exam</b>	points
Active class	-	written exam	20

participation			
Practical work	20	oral exam	50
Preliminary exam(s)	-	.....	
Seminar(s)	10		
The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.			