

Study Program: Physics			
Type and level of studies: Bachelor studies			
<b>Course name: Dosimetry and Radiation Protection</b>			
Lecturer: <b>Biljana Vučković</b>			
Status: Elective			
ECTS: 7			
Attendance prerequisites:			
<b>Course aims</b>			
The course is presented theoretically, using computational tasks, and experimentally, through laboratory exercises. Radiation protection, radiation spectrum and the interaction of ionizing radiation with tissue are studied, as well as X-ray diagnostic techniques, dose limitation system, radiation protection optimization, radiation protection regulations, radiation units and quantities.			
<b>Course outcome</b>			
Protection against ionizing radiation and dosimetry is a subject in which students are introduced to the general principles of dosimetry and radiation protection as well as regulations in this area			
<b>Course content</b>			
<i>Theoretical part</i>			
Sources of ionizing radiation. Ionizing radiation field. Interaction of ionizing radiation with matter (Photon interaction. Neutron interaction. Passage of charged particles through matter). Biological effects of ionizing radiation. Direct measurements of absorbed dose (Units for absorbed dose. Calorimeters for measuring absorbed dose.) Exposure dose and measurement.			
The concept of kerma. Determining absorbed dose during exposure (expositional dose absorbed dose dose in air. Absorbed dose in other materials. Factors of conversion of exposure dose to absorbed dose). Comparison of electron, photon and neutron dosimetry. Dosimetry methods (ionization chamber dosimetry. Chemical, thermoluminescent, photographic dosimetry. Scintillation dosimetry detectors.) Dosimetry in radiation protection. (Equivalent dose. Quality factor. Effective equivalent dose.)			
<i>Practical part</i>			
LABORATORY EXERCISES: experimental exercises.			
<b>Literature</b>			
<ol style="list-style-type: none"> <li>1. Валерија Паић, Ги Паић, Основе радијационе дозиметрије и заштите од зрачења, Свеучилишна наклада, Загреб, 1983.</li> <li>2. Glenn F.Knoll Radiation Detection and Measurement, John Wiley &amp; Sons, N.York 1979.</li> <li>3. Иво Савић, В. Терезија, 2002: Екологија и заштита животне средине, Завод за уџбенике и наставна средства, Београд</li> <li>4. Mason, P.Hughes:Introduction to Environmental Physics, Taylor &amp; Francis Inc, New York, 2018.</li> </ol>			
<b>Number of active classes</b>			Other classes
Lectures: 2	Practical classes: 2	Other forms of teaching:	
<b>Teaching methods</b>			
Lectures, experimental exercises, term papers on chosen topics.			
<b>Assessment (maximum 100 points)</b>			
<b>Course assignments</b>	<b>points</b>	Final exam	<b>points</b>
Lectures	10	written exam	30
Laboratory exercises	20	oral exam	40
Seminars		.....	
Total	<b>30</b>		<b>70</b>