

Study: Physics			
Type and level of studies: Bachelor studies			
<b>Course name: Fundamentals of Nuclear Physics</b>			
Lecturer: <b>Adrović D. Feriz</b>			
Status: Compulsory			
ECTS: 7			
Attendance prerequisites: Electromagnetism 1, 2, Atomic Physics			
<b>Course aims</b> Familiarizing students with the properties of the atomic nucleus, models of the nucleus, types of radioactive decay, as well as nuclear reactions, ionizing radiation,			
<b>Course outcome</b> The students have acquired basic knowledge of nucleus, nucleus models, types of radioactive decay as well as nuclear reactions, ionising radiation and nuclear radiation detection.			
<b>Course content</b> <i>Theoretical part</i> Basic properties of the atomic nucleus: The composition of the nucleus and its dimensions. The mass and energy of the nucleus bond. Nuclear models: liquid drop model, shell model, Collective models, Microscopic models. Basic properties of nuclear force. Interaction of radiation with matter. Nuclear radiation detectors. Radioactive decay (Law of radioactive decay. Radioactive sequences. Types of radioactive decay). Sources and types of ionizing radiation in the biosphere. Natural radioactivity. Radon. Artificial radioactivity. Alpha-, beta- and gamma-ray spectroscopy. Nuclear reactions. Kinematics of nuclear reactions. Cross-section of nuclear reactions. Induced fission and chain reaction. Fusion. Elementary particles, interactions and conservation laws. Nuclear physics and ecology. <i>Practical Part:</i> The exercises are demonstrative and include a visit to the facilities that are available.			
<b>Literature</b> 1. Ф. Адровић, Физика - одабрана поглавља из оптике, атомске и нуклеарне физике, Копиграф Тузла, Тузла, 2006. 2. W.E. Burcham - Nuklearna fizika - uvod (sa fizikom elementarnih čestica) Naučna Knjiga, Beograd 1974. 3. Л. Маринков, Основе Нуклеарне физике, Нови Сад 1986. 4. Д. Крпић, И. Аничин, И. Савић: Нуклеарна физика кроз задатке, Универзитет у Београду, Београд 1994. 5. П. Осмокровић, М. Срећковић: Збирка задатака из нуклеарне физике, Научна књига, Београд 1994.			
<b>Number of active classes</b>			Other classes
Lectures: 3	Practical classes: 2	Other forms of teaching:	
<b>Teaching methods</b> Lectures (3 classes per week during the semester), exercises (2 classes per week during the semester).			
<b>Assessment (maximum 100 points)</b>			
<b>Course assignments</b>	<b>points</b>	<b>Final exam</b>	<b>points</b>
Lectures	20	Written exam	20
Term test 1	10	oral exam	50
Term test 2		.....	
Total	30		70