

Study Program: Physics			
Type and level of studies: Bachelor studies			
<b>Course name: Atomic Physics</b>			
Lecturer: <b>Gordana A. Milić</b>			
Status: Compulsory			
ECTS: 7			
Attendance prerequisites: Electromagnetism, Optics, Quantum Mechanics			
<b>Course aims</b> Acquiring basic knowledge of Atomic Physics and establishing a basis for attending other courses dealing with the structure of substance.			
<b>Course outcome</b> The students have acquired knowledge about the phenomena in which the outer part of atoms and the electrons take part. They are able to solve calculation problems in atomic physics.			
<b>Course content</b> <i>Theoretical part</i> Atomic physics: An overview of the fundamental relations of quantum mechanics. Corpuscular-wave nature of matter. Atomic models. Line spectra and the structure of atoms. X-ray radiation. Stern-Gerlach experiment. Stationary states of hydrogen atoms and spectrum radiation. Ions similar to a hydrogen atom. Atomic orbitals and their properties. Fine structure of energy levels of hydrogen atoms and similar ions. Electron magnetic and mechanical moments. Multiplet structure of atomic terms and emission lines resulting from spin-orbit interaction. B Wave functions of multielectron atoms. Angular momentum in multielectron atoms. Effects of nucleic mass on atomic energy levels. Examining the influence of electric fields on atoms. Examining the effect of a magnetic field, normal Zeeman effect in classical and quantum theory. Electron configuration and ideal orbital filling scheme. Pauli's principle. Hund's rule. Periodic trends in chemical properties of elements. <i>Practical part: calculation exercises: solving calculation problems in accordance with the theoretical classes.</i>			
<b>Literature</b> 1. Јурић М.: Атомска физика 2. Милан В. Курепа: Основи структуре атома 3. Е. В. Шпољскиј: Атомска физика 4. В. Н. Кондратјев: Структура атома и молекула 5. Јагош М. Пурић, Ђ. Стеван И. Ђениже: Збирка решених задатака из Атомске физике 6. J.C.Wilmot: Atomic Physics 7. Божидар В. Станић, Михаило И. Марковић: Збирка решених задатака из Атомске физике			
<b>Number of active classes</b>			Other classes
Lectures: 3	Practical classes: 2	Other forms of teaching:	
<b>Teaching methods</b> Lectures (3 class per week during the semester), experimental exercises at clinics (2 classes per week) during the semester).			
<b>Assessment (maximum 100 points)</b>			
<b>Course assignments</b>	<b>points</b>	Final exam	<b>Points</b>
Lectures	10	written exam	30
practical classes	20	oral exam	40
term test(s)		.....	
Total	<b>30</b>		<b>70</b>