

Study Program: Physics			
Type and level of studies: Bachelor studies			
<b>Course name: Biophysics</b>			
Lecturer: <b>Vučković Biljana</b>			
Status: Elective			
ECTS: 7			
Attendance prerequisites: Fundamentals of Electronics, Fundamentals of Informatics, Fundamentals of Quantum Mechanics			
<b>Course aims</b> Enabling students for participation in contemporary research trends of one of the latest multidisciplinary areas.			
<b>Course outcome</b> Becoming familiar with and grasping the laws governing natural phenomena and the properties of materials with their basics and application to modern biophysical problems.			
<b>Course content</b> <i>Theoretical part</i> Structure, synthesis and characterization of biopolymers, the problem of genetic code, enzyme-substrate interaction (molecular recognition), the physics of membrane and nerve impulses, the locomotor system and biomechanical processes, electrophysiology ECG, EEG and MEG signals, organism-environment interaction, nonequilibrium thermodynamics in biological systems, elements of neural networks, biomaterials, nanomedicine and nanopharmacy, the use of electromagnetic and radioactive radiation in food technology, primary types of air and water pollution, dating samples, biophysics of homoeopathy. <i>Practical part</i> Appropriate consultations with discussion, obligatory seminar papers (writing and defence)			
<b>Literature</b> 1. Д.Раковић: Основи биофизике, ИАСЦ & ИЕФПГ, Београд 2008. 2. М.В.Волкенштейн: Биофизика, Наука, Москва 1981. 3. А.Ц.Гаутон: Медицинска физиологија, гл. 4 и 9, Медицинска књига, Београд-Загреб 1990. 4. Д.Раковић, А.Шкокљев, Д.Ђорђевић: Увод у квантно-информациону медицину, ЕЦПД, Београд 2009. 5. Д.Раковић, Д.Ускоковић: Биоматеријали, ИТН САНУ – ДИМС, Београд 2010. 6. Ј.Шетрајчић, Д.Мирјанић: Биофизичке основе технике и медицине, АНУРС, Бања Лука 2012. 7. Kewal K. Jain: The Handbook of Nanomedicine, Humana, Totowa 2008. 8. K.J.Morrow, R.Bawa, C.Wei: Recent Advances in Basic and Clinical Nanomedicine, Med.Clin.N.Am. 91, 805–843 (2007). 9. E.G.Giannopoulou: Data Mining in Medical and Biological Research, I-Tech, Vienna 2008. 10. C.Rossi: Brain, Vision and AI, I-Tech, Vienna 2008.			
<b>Number of active classes</b>			Other classes
Lectures: 2	Practical classes: 2	Other forms of teaching:	
<b>Teaching methods</b> Lectures (2 class per week during the semester), laboratory 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	10	written exam	
Laboratory exercises	20	oral exam	40
Term paper	30	.....	
<b>Total</b>	<b>60</b>		<b>40</b>