Faculty of Science and Mathematics / MATHEMATICS / PHYSICS

Course:	PHYSICS			
Course ID	**Course status**	**Semester**	**ECTS credits**	**Lessons** (Lessons+Exercises+Laboratory)
12066	Mandatory	1	5	2+2+0
Programs	MATHEMATICS			
Prerequisites	No prerequisites			
Aims	Introduction to the basic laws of physics that apply at the level of atoms and their nuclei			
Learning outcomes	Upon completion of this course the student will be able to: 1. know how to solve the simplest examples of one-dimensional Schrödinger equation 2. understand the statistical interpretation of wave function and measurement 3. interpret the uncertainty relation 4. know the basic properties of momentum in quantum mechanics 5. reproduce basic properties spectra of hydrogen atoms			
Lecturer / Teaching assistant	Predrag Miranović			
Methodology	lectures, exercises, consultations			
Plan and program of work				
Preparing week	Preparation and registration of the semester			
I week lectures	Wave function. Schrödinger equation. Statistical interpretation. Probability.			
I week exercises				
II week lectures	Normalization			
II week exercises				
III week lectures	Momentum. Uncertainty principle			
III week exercises				
IV week lectures	Time independent Schrödinger equation. Stationary states.			
IV week exercises				
V week lectures	Infinite square well			
V week exercises				
VI week lectures	Harmonic oscillator			
VI week exercises				
VII week lectures	Finite depth potential well			
VII week exercises				
VIII week lectures	Free particle			
VIII week exercises				
IX week lectures	Delta-function potential			
IX week exercises				
X week lectures	Mathematical formalism. Linear algebra			
X week exercises				
XI week lectures	Hilbert space. Generalized statistical interpretation			
XI week exercises				
XII week lectures	Schrödinger and Heisenberg picture			
XII week exercises				
XIII week lectures	Quantum mechanics in three dimensions. Schrödinger equation in spherical coordinates			
XIII week exercises				
XIV week lectures	Hydrogen atom			
XIV week exercises				
XV week lectures	Angular momentum			

XV week exercises	
Student workload	5 ECTS

Per week	**Per semester**
5 credits x 40/30=6 hours and 40 minuts 2 sat(a) theoretical classes 0 sat(a) practical classes 2 excercises **2 hour(s) i 40 minuts** of independent work, including consultations	Classes and final exam: **6 hour(s) i 40 minuts x 16 =106 hour(s) i 40 minuts** Necessary preparation before the beginning of the semester (administration, registration, certification): **6 hour(s) i 40 minuts x 2 =13 hour(s) i 20 minuts** Total workload for the subject: **5 x 30=150 hour(s)** Additional work for exam preparation in the preparing exam period, including taking the remedial exam from 0 to 30 hours (remaining time from the first two items to the total load for the item) **30 hour(s) i 0 minuts** Workload structure: **106 hour(s) i 40 minuts (cources), 13 hour(s) i 20 minuts (preparation), 30 hour(s) i 0 minuts (additional work)**
Student obligations	Students are required to attend classes regularly.
Consultations	
Literature	1. Introduction to quantum mechanics, D. J. Griffiths, Prentice Hall, New Jersey 2005
Examination methods	Tests (40 points), homework (10 points), final exam (50 points).
Special remarks	
Comment	

Grade:	F	E	D	C	B	A
Number of points	less than 50 points	greater than or equal to 50 points and less than 60 points	greater than or equal to 60 points and less than 70 points	greater than or equal to 70 points and less than 80 points	greater than or equal to 80 points and less than 90 points	greater than or equal to 90 points