

Program	Level of studies		First cycle	
	Program name		Educational Physics	
Course name	QUANTUM MECHANICS I			
Course ID	Semester	Course status	ECTS credits	L+E
PTH5711	V	MANDATORY	6	3+2
Lecturer	Prof. dr. Dejan Milošević			
Aims and intended learning outcomes	The objective of the course is to introduce students to the basic concepts of quantum mechanics, as well as to enable them to solve tasks from this fundamental field of theoretical physics independently, using new mathematical methods. After presenting the physical basics and mathematical apparatus of quantum mechanics, the developed formalism will be applied to simple quantum mechanical systems. The learning outcome is mastering theoretical knowledge from the basis of quantum mechanics, the adoption of the quantum mechanics formalism, and the acquisition of the ability to understand and independently solve quantum-mechanical problems, which is important for a large number of subjects that a student will encounter during the course of studies.			
Course content				
Historical introduction and physical basics of quantum mechanics. Mathematical basics of quantum mechanics. Schrödinger equation. Harmonic oscillator. Transition from classical to quantum mechanics. Spherical symmetric potential. Hydrogen atom. The representation theory.				
Student workload (hours)		Grading		
Lectures and Exercises	75	Assessment method	Points	
Exam preparation	75	Partial exam	50	
Assignments		Final exam	50	
Other				
Total	150			
		Total	100	
Literature				
Mandatory:				
1. D. Milošević, Kvantna mehanika I, 2015. (available at e-learning)				
Recommended:				
1. L. I. Šif, Kvantna mehanika, Vuk Karadžić, Beograd, 1968.				
2. Supek, Teorijska fizika i struktura materije, II dio, Školska knjiga, Zagreb, 1977.				
3. W. Greiner, Quantum mechanics. An introduction, Springer, Berlin, 1989.				
Remarks				