

(Table 5.2) Course unit description

Study program : Physics-				
Type and level of studies: Master				
Course unit: Selected chapters of quantum mechanics				
Teacher in charge : Miroljub Dugić				
Language of instruction English				
ECTS: 6				
Prerequisites: Basic knowledge of theoretical physics courses: classical and quantum mechanics, statistical physics				
Semester 9				
Course unit objective Students will be familiarized with certain fields and methods of modern quantum mechanics with an emphasis on subjects of wide foundational and application interest.				
Learning outcomes of Course unit Students will be trained for independent work in solving the basic problems of interest and critical assessment of the literature.				
Course unit contents <i>Theoretical classes</i> Quantum states and ensembles: pure vs. mixed states/ensembles. Composite systems, interactions and the Schmidt canonical form. Quantum non-separability. Symmetries in non-relativistic quantum theory. Second quantization. Quantum theory of molecules: adiabatic approximation. Molecular states and shapes. Cold atoms and molecules.				
Literature 1. A. Messiah, "Quantum Mechanics", North Holland Publ. Comp., Amsterdam, 1976 2. Gordon Fraser, Ed., "The New Physics for the twenty-first century", Cambridge University Press, Cambridge, UK, 2006				
Number of active teaching hours				Other classes
Lectures:	Practice:	Other forms of classesmentor system 90	Independent work:	
Teaching methods				
Examination methods (maximum 100 points)				
Exam prerequisites	No. of points:	Final exam	No. of points:	
Student's activity during lectures		oral examination	35	
practical classes/tests		written examination	35	
Seminars/homework	30		
Project				
Other				
Grading system				
Grade	No. of points	Description		
10	91-100	Excellent		
9	81-90	Exceptionally good		
8	71-80	Very good		
7	61-70	Good		
6	51-60	Passing		
5	<51	Failing		