

(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/Momir Arsenijević				
Language of instruction: English				
ECTS: 6				
Prerequisites: Basic knowledge of theoretical physics courses: classical and quantum mechanics, statistical physics				
Semester: winter semester				
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 in independent work in solving the basic problems of interest and critical assessment of the literature.				
Course unit contents Theoretical classes 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", Cam. Uni. Press, Cambridge, UK, 2006				
Number of active teaching hours				Other classes:
Lectures:	Practice:	Other forms of classes: Mentor system 60	Independent work:	
Teaching methods: lectures, seminars, exercises				
Examination methods (maximum 100 points)				
Exam prerequisites	No. of points	Final exam	No. of points	
Practical classes		Written examination		
Tests		Oral examination		
Homework		Other		
Seminars				
Project				
Grading system				
Grade	No. of points	Description		
10	>= 91	Excellent		
9	81-90	Exceptionally good		
8	71-80	Very good		
7	61-70	Good		
6	51-60	Passing		
5	<=50	Failing		