Study program	Level of studies	Third cycle
	Title of the study program	Science and mathematics education

COURSE

Course title	**Selected Chapters in Atomic and Molecular Physics**

Course ID	Semester	Course status	ECTS credits	Contact hours
PTH590	I	Elective	3	45

Lecturers	Lecturer in charge	Prof. dr. Aner Čerkić
	Other lecturers	
Course aims	Introducing the students to selected problems in atomic and molecular physics.	

CONTENT

#	Teaching units	Contact hours		
		L	E/S	C
	Historical introduction. Most important accomplishments in the atomic, molecular and optical physics in the 20th century. Atomic structure. Atoms in external fields. Interaction of atoms with light. Light interacting with atoms in external fields. Atomic collisions. Cold atoms. Bose-Einstein condensation. Molecules. From nanoseconds to femtoseconds in science. Attoscience. Examples of experimental methods. Experiments and fundamentals of quantum physics. Different problems and applications	30	15	

LITERATURE

1. D. Budker, D. F. Kimball, D. P. DeMille, Atomic physics: an exploration through problems and solutions, Oxford University Press, New York, 2004.
2. More things in heaven and earth: A celebration of physics at the millenium, ed. B. Benderson, Atomic molecular and optical physics, group of authors, pp. 377.-498., Springer, New York, 1999.

ASSESSMENT OF LEARNING

	Assessment method	Points	Threshold
1.	First partial exam	30	16
2.	Second partial exam	30	17
3	Final exam	40	22
4.			
	Total	100	55