

Program	Level of studies		First cycle	
	Program name		Physics	
Course name	QUANTUM FIELD THEORY I			
Course ID	Semester	Course status	ECTS credits	L+E
PTH7521	VII	ELECTIVE	5	2+2
Lecturer	Prof. dr. Dejan Milošević			
Aims and intended learning outcomes	The aim of the course is to introduce students to concepts and the mathematical apparatus of quantum field theory. After studying relativistic quantum mechanics, the basics of classical field theory and nonrelativistic quantum field theory will be presented. The learning outcome is mastering the basic concepts and the mathematical apparatus of classical and quantum field theory.			
Course content				
Klein-Gordon equation. Dirac equation and symmetry transformation. Solution of the Dirac equation for a free particle. Dirac equation and interaction. Classical field theory. Theorem Noether. Nonrelativistic quantum field theory.				
Student workload (hours)		Grading		
Lectures and Exercises	60	Assessment method	Points	
Exam preparation	60	Partial exam	50	
Assignments		Final exam	50	
Other				
Total	125			
		Total	100	
Literature				
Mandatory:				
1. D. Milošević, Relativistička kvantna mehanika, Univerzitetski udžbenik, bosnia ARS, Tuzla, 2005.				
2. Lecture notes.				
Recommended:				
1. W. Greiner, J. Reinhardt, Field quantization, Springer, Berlin, 1996.				
2. N. Zovko, Osnove relativističke kvantne fizike, Školska knjiga, Zagreb, 1987.				
3. I. Supek, Teorijska fizika i struktura materije, II dio, Školska knjiga, Zagreb, 1977.				
Remarks				