

Study programme	Type (cycle)		First cycle	
	Module		Physics	
Course title	ELEMENTARY PARTICLE PHYSICS I			
Code	Semestar	Status	ECTS	L+E
PTH8621	VIII	ELECTIVE	6	2+1
Lecturer	Doc. dr. Admir Greljo			
Aims and intended learning outcomes	The goal of the course is to introduce the main subject and mathematical formalism of theoretical elementary particle physics. The expected outcome is to enable students to explore advanced topics as well as follow modern trends in this area of physics.			
Course contents				
Classification of elementary particles. A short review of mathematical formalism for scalar, spinor, and vector particles. Abelian gauge theories. Feynman diagrams. Cross sections and decay rates. Non-abelian gauge theories. Spontaneous symmetry breaking. Goldstone theorem. Higgs mechanism and the Standard Model.				
Working hours (h)		Exams and marks		
P + V	45	Type	Points	
Exams	60	Midterm exam	35	
Written	45	Final exam	35	
Other		Homeworks	30	
Total	150			
		Total	100	
Literature				
Main:				
1. A Modern Introduction to Quantum Field Theory / Maggiore				
2. TASI 2013 lectures on Higgs physics within and beyond the Standard Model / Logan				
Extended :				
1. Fizika elementarnih čestica / Ivica Picek				
2. Simetrije u fizici / Ilja Doršner				
3. An introduction to quantum field theory / Michael E. [Edward] Peskin, Daniel V. Schroeder				
4. Lie algebras in particle physics / Howard Georgi				
Other				