

Level: bachelor				
Course title: Particle physics				
Status: obligatory/elective				
ECTS: 6				
Requirements: Introduction to theoretical physics				
Learning objectives To teach students about the main aspects of experimental and theoretical particle physics.				
Learning outcomes Understanding the principles of Standard Model and Beyond Standard Model and Particle Physics. Ability to follow the latest results in this research field.				
Syllabus <i>Theoretical instruction and Practical instruction</i> Particle physics development – the main issues. Standard Model. Particle accelerators and detectors. Experimental data analysis – methods and examples. Present status and possibilities for future development of instrumentation in the field of particle physics. Symmetries, invariance principle and conserving laws. Examples. Experimental testing. Elementary particle classification and types of fundamental interactions. Electromagnetic interaction. Weak interaction. Strong interaction and quantum chromodynamics as theoretical model of strong interaction. Gravitation. Unified field theory, Weinberg-Salam’s theory. Grand Unification Theory. Beyond Standard model. Particle physics and cosmology.				
Weekly teaching load				Other:
Lectures: 3	Exercises: 1	Other forms of teaching: 1	Student research:	