

Level : master				
Course title: Simulation Techniques in Nuclear Physics				
Status: elective				
ECTS: 8				
Requirements: Nuclear Physics				
Learning objectives Introducing students to the concepts of simulation techniques in the research field of nuclear physics.				
Learning outcomes Understanding the principles of simulation techniques, which are applied in the research field of nuclear physics.				
Syllabus Monte-Carlo method. Random and pseudorandom numbers. Uniformly distributed random numbers. The random number generator. Non-uniform distribution of random numbers. Monte-Carlo simulation. Geant4 software package. Structure of Geant4 software package. Geant4 physical models and processes. Building of simulation settings. Influence of the detector geometry in the process of simulation. Selected examples of Monte Carlo simulation in nuclear physics. Comparison of simulation results with experimental data. General characteristics of a MCNP computer program for Monte-Carlo simulation.				
Weekly teaching load				Other:
Lectures: 3	Exercises: 1	Other forms of teaching: 1	Student research:	