

Level: PhD				
Course title: Experimental techniques and methods of nuclear physics				
Status: elective				
ECTS: 30				
Requirements: Contemporary experimental physics III, Nuclear physics				
Learning objectives To introduce students to the nuclear methods and experimental techniques.				
Learning outcomes Students should develop: - Basic abilities: become familiar with principles of nuclear methods and experimental techniques; - Specific abilities: since some technologies are studied in detail, the knowledge could be applied for practical purposes.				
Syllabus Measurement techniques: Basic nuclear processes in radioactive sources. Passage of radiation through matter. The ionization and scintillation detectors. Semiconductor detectors and cryogenic detectors. Magnetic spectrometers. Electronic signal processing, analogue and digital circuits. Coincident techniques. Methods based on measuring the time characteristics of signals. Accelerator techniques. Handling of radiation beams. Dosimetric techniques. Measurement methods: The research methods of schemes of nuclear decay. The research of nucleus through Coulomb excitation. Spectroscopy of nucleus after neutron capture. Half-life measurements of excited states of nuclei. Half-life measurements of the ground state of nuclei. Measurement of spin and electromagnetic moments of nuclei in the ground state. Angular correlation of nuclear radiation. Low-temperature orientation of nuclei. Methods of measurement the recoil of nucleus. Methods of measuring the polarization of nucleus radiation.				
Weekly teaching load				Other:
Lectures: 5	Exercises:	Other forms of teaching:	Student research: 15	