

Level: master				
Course title: Radiological Physics				
Status: elective				
ECTS: 9				
Requirements: Nuclear Physics, Contemporary Experimental Physics III				
Learning objectives Students should gain theoretical and practical knowledge in the area of Radiological Physics.				
Learning outcomes Radiological Physics course should qualify students to work in the area radiation application.				
Syllabus Electromagnetic radiation in classical physics and quantum mechanics. Gamma radiation emission and electromagnetic transitions. Production of x-rays. Characteristic and continual x-radiation. Roentgen tube. Cherenkov radiation. Bremsstrahlung. Charged particles accelerators (Cockroft – Walton accelerator. Electrostatic, linear and orbital accelerators.) Sources of neutron radiation (Cf-252, (α ,n) reactions, low-voltage neutron generators). X-ray and neutron radiography. Neutron activation analysis. Radiation sterilization. Industrial application of radiation (level and thickness measurements, density gauges, well logging). Radioisotope dating. Radioisotopes as tracers. External beam radiotherapy. Brachithery. Positron emission tomography.				
Weekly teaching load				Other:
Lectures: 3	Exercises: 1	Other forms of teaching: 1	Student research:	