

Level: master				
Course title: Medical imaging with ionizing radiation				
Status: obligatory				
ECTS: 8				
Requirements: none				
Learning objectives The objective is to qualify students for understanding the physics related to application in medical imaging.				
Learning outcomes Students acquire knowledge and ability for individual and team scientific research work in medical institutions on medical imaging.				
Syllabus <i>Theoretical instruction</i> Imaging in medicine has a number of medical imaging techniques in order to obtain images of internal structures of a living human body using gamma rays, X-ray or otherwise. The possibility of obtaining relevant information from a living human body through images is widely used both in clinical as well as in research and medicine, this has brought a revolution in diagnostics. A common feature of these techniques is that they are non-invasive (without opening the body). Some techniques are projection imaging, and some tomography. Objective of the course in medical imaging with ionizing radiation is to introduce students to the latest developments in this area. Upon completion of the course, the student should master the necessary knowledge of physics research in the medical imaging. The physical basis for medical imaging; radionuclides and production of radiopharmaceuticals (cyclotron, reactor, generator); radiation protection and quality control; national and international legal regulations, methods of measurement in nuclear medicine instrumentation (measurement and detection); Gamma camera (Anger, SPECT, etc.) PET; Therapy with radionuclides, metrology aspects of Monte Carlo in Nuclear Medicine. <i>Practical instruction:</i> Exercises, other forms of teaching and student individual and group research exercises.				
Weekly teaching load				Other:
Lectures: 3	Exercises: 1	Other forms of teaching: 2	Student research:	