

Level: Bachelor				
Course title: Protection against Ionizing Radiation and Dosimetry				
Status: elective				
ECTS: 6				
Requirements: none				
Learning objectives To introduce students to theory, using experimental and computational tasks performed in the lab. The aim is to examine the radiation protection, radiation spectrum, the interaction of radiation with tissue, X-ray diagnostic techniques, dose limits, the optimization of radiation protection, radiation protection regulations, Radiation Units and size.				
Learning outcomes Protection against ionizing radiation dosimetry is the subject in which students are introduced to the general principles of dosimetry and radiation protection and regulations in this area.				
Syllabus <i>Theoretical instruction</i> Interaction of ionizing radiation with matter (interaction of the photons, interaction of neutrons, passage of charged particles through the matter). Direct measurement of absorbed dose (absorbed dose units, calorimeters for measuring absorbed doses.) Exposure dose and its measurement. The concept of Kerma. Determination of absorbed dose during the exposure (absorbed dose in the air, absorbed doses in other materials, conversion factors). Comparison of dosimetry of electrons, photons and neutrons. Methods of dosimetry (ionizing chambers, chemical, thermoluminescent, photographic dosimetry; dosimetry by scintillation detectors.) Dosimetry in radiation protection. (The equivalent dose. Quality Factor. The effective dose equivalent.) <i>Practical instruction</i> Practical work of 2 hours per week.				
Weekly teaching load				Other:
Lectures: 3	Exercises: 1	Other forms of teaching: 1	Student research:	