

Course Unit Descriptor

Study Programme: Physics			
Course Unit Title: Radiation and life			
Course Unit Code: F18RZM			
Name of Lecturer(s): Full Professor Nataša Todorović			
Type and Level of Studies: Bachelor Academic Degree			
Course Status (compulsory/elective): Elective			
Semester (winter/summer): Winter			
Language of instruction: English			
Mode of course unit delivery (face-to-face/distance learning): Face-to-face			
Number of ECTS Allocated: 6			
Prerequisites: Fundamentals of nuclear physics			
Course Aims: Introduction with sources of ionizing radiation in the environment, radiation protection, interaction of ionizing radiation with tissue, dose limitation, optimization of radiation protection, regulation in radiation protection, risk assessment.			
Learning Outcomes: General Skills: Radiation and living matter is the subject in which students gain knowledge about sources of ionizing radiation in the environment, interaction of radiation with living matter as well as measures of protection against ionizing radiation. Specific Competencies: Students acquire knowledge of general principles of dosimetry, radiation protection, regulations in this field, radiation measurement and control, biological effect of radiation, radiation risk assessment, radiation safety and security.			
Syllabus: <i>Theory</i> Fundamentals of ionizing radiation. Sources of ionizing radiation. Interaction of ionizing radiation with matter (interaction of photons, neutrons, charged particles). Dosimetric quantities and units. Exposure to ionizing radiation. Biological effects of ionizing radiation. Radiation Protection. Medical prevention. Measurement and control of ionizing radiation. The use of ionizing radiation in medicine and scientific research. Nuclear weapons and nuclear disaster. Assessment of radiation risk. Legislation. <i>Practice</i> Experimental and computational exercises.			
Required Reading: 1. Jacob Shapiro, Radiation Protection, Harvard University Press, 2002.			
Weekly Contact Hours:	Lectures: 3	Practical work: 2	
Teaching Methods: Lectures, seminars and practical work.			
Knowledge Assessment (maximum of 100 points):			
Pre-exam obligations	points	Final exam	points
Active class participation	5	written exam	30

Practical work	10	oral exam	40
Preliminary exam(s)	-	
Seminar(s)	15		
The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.			