

Subject card

Subject name and code	Graduate study lecture - Fundamentals of radiation protection, PG_00040396						
Field of study	Chemistry						
Date of commencement of studies	October 2026		Academic year of realisation of subject		2026/2027		
Education level	Master's studies		Subject group		Obligatory subject group in the field of study Optional subject group		
Mode of study	full-time studies		Mode of delivery		at the university		
Year of study	1		Language of instruction		Polish		
Semester of study	2		ECTS credits		3.0		
Learning profile	academic		Assessment form		credit		
Conducting unit	Laboratory of Toxicology and Radiation Protection -> Department of Environmental Chemistry and Radiochemistry -> Faculty of Chemistry -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Dagmara Strumińska-Parulska				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	0.0	0.0	30
	E-learning hours included: 0.0						
Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	Number of study hours	30		5.0		40.0	75
Subject objectives	Familiarizing students with the issues mentioned in the lecture program content						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[CHEMMU2_W05] Has extended knowledge in the field of the specialisation studied.	1. knows and understands the basic concepts related to radiochemistry, radiology, radiotoxicity and radiation protection, 2. has knowledge of the impact of ionizing radiation on living organisms, 3. understands the concept of radiotoxicity and knows its groups, 4. has knowledge of the sources of origin of radionuclides in the human body, 5. knows how to counter exposure to ionizing radiation, 6. knows what are the radiological effects of radionuclide content in building materials, 7. knows the radiological effect of disasters at the Chernobyl and Fukushima nuclear power stations, 8. knows the basic standards of radiation protection.	[SW1] oral statement/ conversation/discussion
	[CHEMMU2_U02] Critically assesses the results of conducted, performed observations and theoretical calculations and discusses errors.	1. understands the basic concepts of radiochemistry and radiotoxicology, 2. knows how to assess the radiological effects of human absorption of radionuclides from air, water and food, and as a result of smoking, 3. is able to assess the most important radioactive threats to humans and knows how to limit them, 4. has the ability to calculate radiation doses and weaken ionizing radiation through shields.	[SU1] oral statement/conversation/ discussion
	[CHEMMU2_K01] Knows the limitations of her/his own knowledge; understands the need for further education and can inspire other people to do so.	1. understands the need for further education in the field of radiation protection, 2. shows creativity in limiting the absorption of radionuclides by humans and makes society aware of the effects of excessive incorporation of radionuclides, 3. is able to transfer knowledge in society about the sources of radiochemical contamination and the possibilities of reducing exposure to ionizing radiation,	[SK1] oral statement/conversation/ discussion
Subject contents	Ionizing radiation. Sources of ionizing radiation. Biological effect of ionizing radiation. Differences in the biological effectiveness of individual types of ionizing radiation. Radiation doses and dose equivalent. Radiation Exposure. Dosimetric instruments. Basic principles and standards of radiation protection; professionally exposed staff and patients. Preventive examinations and case-law regarding radiation damage.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	oral exam, activity	51.0%	100.0%
Recommended reading	Basic literature	B. Skwarzec, Radiochemia środowiska i ochrona radiologiczna, Wydawnictwo DJ s.c, Gdańska, 2002 J. Sobkowski, Chemia radiacyjna i ochrona radiologiczna, Wydawnictwo Adamantan, Warszawa, 2009	
	Supplementary literature	-	
	eResources addresses		
Example issues/ example questions/ tasks being completed	-		
Work placement	Not applicable		

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