University of Gdańsk

Subject card

Subject name and code	Radiological Protection 1, PG_00167101						
Field of study	Nuclear safety and radiological protection						
Date of commencement of studies	October 2026		Academic year of realisation of subject	2027/2028			
Education level	Bachelor's studies		Subject group	Obligatory subject group in the field of study Subject group related to scientific research in the field of study			
Mode of study	full-time studies		Mode of delivery	at the university			
Year of study	2		Language of instruction	Polish			
Semester of study	3		ECTS credits	4.0			
Learning profile	academic		Assessment form	exam			
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	30.0	0.0	0.0	0.0	60
	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	60		0.0		40.0	100
Subject objectives	Familiarizing students with the issues mentioned in the lecture program content						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[BJORL3_K01] Is prepared to critically evaluate own actions, recognizes the limitations of own knowledge, and understands the need for further education.	understands the need for further education in the field of radiological protection	[SK3] text preparation/written work [SK4] test/exam - oral or written
	[BJORL3_W09] Has general knowledge of the legal and ethical considerations associated with professional activities.	knows basic radiological protection standards	[SW4] test/exam - oral or written [SW3] text preparation/written work
	[BJORL3_W08] Knows general principles of ergonomics and occupational health and safety.	knows basic radiological protection rules	[SW3] text preparation/written work
	[BJORL3_W01] Has a detailed knowledge of the basic concepts and principles of nuclear physics and chemistry, understands their historical development and their importance not only for nuclear safety and radiation protection, but also for understanding the modern world.	1. knows and understands the basic concepts related to radiochemistry, radiotoxicity and radiological protection 2. has knowledge about the influence of ionizing radiation on living matter	[SW4] test/exam - oral or written [SW3] text preparation/written work
	[BJORL3_K06] Is ready to perform the professional role in a competent and responsible manner and to adhere to the principles of professional ethics.	demonstrates creativity in limiting the absorption of radionuclides by humans and raises public awareness of the effects of excessive incorporation of radionuclides	[SK3] text preparation/written work [SK4] test/exam - oral or written
	[BJORL3_K05] Is ready to initiate activities for the public interest and to popularise radiological protection and nuclear safety.	can convey knowledge to society about the sources of radiochemical contamination and the possibilities of limiting exposure to ionizing radiation	[SK3] text preparation/written work [SK4] test/exam - oral or written
	[BJORL3_U07] Knows how to present in an accessible way the latest developments in radiological protection and nuclear safety and can analyze their legal aspects.	1. can estimate the radiological effects of human absorption of radionuclides from air, water and food and as a result of smoking cigarettes, 2. is able to assess the most important radioactive threats to humans and knows how to reduce them	[SU3] text preparation/written work [SU4] test/exam - oral or written
	[BJORL3_U04] Can use mathematical and computer apparatus to analyze and solve problems in radiological protection and nuclear safety.	1. understands the basic concepts of radiological protection and radiotoxicology, 2. has the ability to calculate radiation doses and weaken ionizing radiation through shields	[SU3] text preparation/written work [SU4] test/exam - oral or written
	[BJORL3_W07] Has advanced knowledge of the construction and principles of operation of scientific apparatus used in radiological protection and nuclear safety.	has knowledge of equipment used in radiological protection	[SW4] test/exam - oral or written [SW3] text preparation/written work
	[BJORL3_W06] Knows advanced computational methods used to solve typical problems in radiological protection and nuclear safety.	1. knows how to prevent exposure to ionizing radiation 2. knows what are the radiological effects of the radionuclide content in building materials, 3. knows the radiological effects of the disasters at nuclear power plants in Chernobyl and Fukushima,	[SW4] test/exam - oral or written [SW3] text preparation/written work

Subject contents	Types of ionizing radiation. Sources of ionizing radiation. Ionization and excitation phenomena. Biological effects 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. Calculation of effective doses received by people occupationally exposed to ionizing radiation and possibilities of limiting them. Exercise auditorium: Calculation of exposure to ionizing radiation. Calculation of operating conditions in the radiation.
Prerequisites and co-requisites	

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	written exam	51.0%	60.0%
	colloquium	51.0%	40.0%
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	W. Szymański, Chemia jądrowa, PWN, Warszawa 1996	
	eResources addresses		
Example issues/ example questions/ tasks being completed	in accordance with the content of the lecture		
Work placement	Not applicable		

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