University of Gdańsk

Subject card

Subject name and code	Nuclear Safety, PG_00204572						
Field of study	Nuclear safety and radiological protection						
Date of commencement of studies	October 2026		Academic year of realisation of subject	2028/2029			
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	3		Language of instruction	Polish			
Semester of study	5		ECTS credits	2.0			
Learning profile	academic		Assessment form	credit			
Conducting unit	Faculty of Mathematics, Physics and Informatics -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Angelina Łobejko				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	30.0	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		0.0		30.0	60
Subject objectives	Equipping students with the knowledge and skills necessary to identify, assess, and minimize the risks associated with the use of ionizing radiation sources.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[BJORL3_W06] Knows advanced computational methods used to solve typical problems in radiological protection and nuclear safety.	The student knows the basic calculation methods used to analyze hazards and solve typical problems in the field of nuclear safety, including radiation dose calculations, exposure assessment, and the design of protective measures. The student understands the principles of applying these methods, their limitations, and their role in decision-making concerning the safety of nuclear installations and radiation sources.	[SW2] presentation/project/paper/ report [SW3] text preparation/written work
[BJORL3_W07] Has advanced knowledge of the construction and principles of operation of scientific apparatus used in radiological protection and nuclear safety.	The student knows the structure and basic principles of operation of equipment used in nuclear safety and radiation protection systems, including radiation detectors, monitoring devices, and safety systems for nuclear radiation installations. The student understands the functions of individual components of this equipment, their capabilities and limitations, as well as their importance for assessing the radiation situation and preventing hazards.	[SW2] presentation/project/paper/ report [SW3] text preparation/written work
[BJORL3_U04] Can use mathematical and computer apparatus to analyze and solve problems in radiological protection and nuclear safety.	The student is able to use appropriate mathematical apparatus and IT tools to analyze and solve problems in the field of nuclear safety, including exposure assessment, radiation dose calculations, and emergency modeling. The student is able to interpret the results of calculations and apply them to decision-making regarding the design and verification of protective measures and safety procedures.	[SU2] presentation/project/paper/ report [SU3] text preparation/written work
[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.	The student is able to present the latest achievements and developments in technologies and methods used in nuclear safety and radiation protection in a clear and accessible manner. The student is able to analyze the related legal aspects, interpret their significance for professional practice, and assess the compliance of new solutions with applicable regulations and safety standards.	[SU2] presentation/project/paper/ report [SU3] text preparation/written work
[BJORL3_K05] Is ready to initiate activities for the public interest and to popularise radiological protection and nuclear safety.	The student understands the importance of promoting issues related to nuclear safety and radiation protection and is able to recognize its impact on shaping a responsible social attitude towards radiation hazards. The student demonstrates a willingness to undertake educational and informational activities promoting reliable knowledge about ionizing radiation, the principles of its safe use, and the importance of legal regulations.	[SK2] presentation/project/paper/ report [SK3] 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.	The student is aware of the importance of professionalism in work related to nuclear safety and understands the need for strict adherence to professional ethics. The student is able to identify situations requiring particular responsibility, reliability, and transparency, and demonstrates a willingness to make decisions in accordance with ethical standards and the public good.	[SK2] presentation/project/paper/ report [SK3] text preparation/written work

Course outcome	Subject outcome	Method of verification
[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.	The student has a general knowledge of the basic concepts of nuclear physics and chemistry necessary to understand the principles of nuclear safety and is familiar with their historical development and significance for modern nuclear technologies. The student also has basic biological and ecological knowledge allowing them to interpret the effects of ionizing radiation on living organisms and the environment in the context of risk assessment and the design of safety measures.	[SW2] presentation/project/paper/ report [SW3] text preparation/written work
[BJORL3_W09] Has general knowledge of the legal and ethical considerations associated with professional activities.	The student has basic knowledge of the legal and ethical conditions related to activities in the field of nuclear safety, including national and international regulations, standards, and professional obligations. The student understands the importance of ethical responsibility when working with radioactive materials and nuclear installations, as well as the role of compliance with the principles of law and ethics in ensuring public safety.	[SW2] presentation/project/paper/ report [SW3] text preparation/written work
[BJORL3_K01] Is prepared to critically evaluate own actions, recognizes the limitations of own knowledge, and understands the need for further education.	The student is able to critically assess the scope and limitations of their own knowledge in the field of nuclear safety and recognizes the need to constantly expand it. The student demonstrates a willingness to systematically improve their skills, follow changes in regulations, technologies, and best practices, understanding that up-to-date knowledge is essential for the responsible performance of professional duties.	[SK2] presentation/project/paper/ report [SK3] text preparation/written work

Subject contents

not applicable

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
not applicable	51.0%	50.0%
not applicable	51.0%	50.0%

Recommended reading

Basic literature	not applicable
Supplementary literature	not applicable
eResources addresses	

Example issues/ example questions/ tasks being completed

not applicable

Work placement

Not applicable

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