



Subject card

Subject name and code		Radiological protection and public health, PG_00065888						
Field of study		Nuclear Engineering						
Date of commencement of studies		February 2025	Academic year of realisation of subject			2024/2025		
Education level		second-cycle studies	Subject group			Obligatory subject group in the field of study		
Mode of study		Full-time studies	Mode of delivery			at the university		
Year of study		1	Language of instruction			Polish		
Semester of study		1	ECTS credits			2.0		
Learning profile		general academic profile	Assessment form			assessment		
Conducting unit		Institute of Energy -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)		Subject supervisor		dr hab. inż. Michał Klugmann				
		Teachers		dr hab. inż. Michał Klugmann				
Lesson types and methods of instruction		Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
		Number of study hours	15.0	15.0	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		15.0	50	
Subject objectives		The aim of the course is to familiarize students with the specificity of ionizing radiation and its sources related to nuclear energy. The course includes: an overview of history and technology, issues of radiological protection in situations involving occupational exposure and in the event of accidents, issues related to radioactive waste management and legal aspects.						
Learning outcomes		Course outcome		Subject outcome		Method of verification		
		[K7_U02] formulates and tests hypotheses concerning problems related to processes occurring in Nuclear Power Technologies, their efficiency, rationality, operation, safety and impact on the environment, as well as simple research problems		Ability to perceive issues related to sources of ionizing radiation in many dimensions: technical, social, economic, environmental, ethical, scientific and legal. Ability to identify challenges and problems.		[SU2] Assessment of ability to analyse information		
		[K7_W04] recognizes and interprets selected issues in the field of advanced detailed knowledge, particularly in the scope of methods, techniques, tools, algorithms and standards specific to Nuclear Power Technologies taking into account the principles of safety and radiological protection		Knowledge of management decision-making techniques in relation to risks related to nuclear energy and waste management, including: based on the SWARA and DREMATEL methods. Taking into account boundary conditions and local specificity and nuances in the so-called fuzzy systems.		[SW1] Assessment of factual knowledge		
		[K7_U12] develops her/his own potential and independently plans own, lifelong learning, while also being able to guide others in this regard		Developing a multidisciplinary approach that integrates knowledge in the field of nuclear physics, environmental protection and public policy, especially in the context of analysis and decision-making in situations where there are many criteria, and each of them has a different degree of importance and impact on the final decision.		[SU3] Assessment of ability to use knowledge gained from the subject		

Subject contents	<p>1) Historical background and social consequences of the use of nuclear energy.</p> <p>2) Radiation protection - definitions and general principles:</p> <ul style="list-style-type: none"> <li>• sources and specificity of ionizing radiation,</li> <li>• occupational exposure categories,</li> <li>• occupational risk assessment,</li> <li>• corrective and/or preventive actions,</li> <li>• limit doses,</li> <li>• civil defense.</li> </ul> <p>3) Waste management:</p> <ul style="list-style-type: none"> <li>• types and forms of nuclear fuel,</li> <li>• methods of recycling and disposal of nuclear fuel,</li> <li>• national plan for management of radioactive waste and spent nuclear fuel,</li> <li>• tasks of the Radioactive Waste Disposal Plant,</li> <li>• National Radioactive Waste Repository,</li> <li>• management of radioactive waste,</li> <li>• discussion of environmental and health issues.</li> </ul> <p>4) Legal acts.</p>		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
Recommended reading	Basic literature	No english literature yet.	
	Supplementary literature	No english literature yet.	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	<p>1) Sources and specificity of ionizing radiation.</p> <p>2) Types and forms of nuclear fuel.</p> <p>3) Methods of recycling and disposal of nuclear fuel.</p> <p>4) State plan for dealing with radioactive waste and spent nuclear fuel.</p>		
Work placement	Not applicable		

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