GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Radiological protection and public health, PG_00065888		
Field of study	Nuclear Engineering		
Date of commencement of studies	February 2027	Academic year of realisation of subject	2026/2027
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 -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Michał Klugmann	
	Teachers		

Lesson types

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] dvelops 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

<table>
<tr><td>Subject contents</td><td>Course content – lecture
1) Historical background and social consequences of the use of nuclear energy.

2) Radiation protection - definitions and general principles:

• sources and specificity of ionizing radiation,
• occupational exposure categories,
• occupational risk assessment,
• corrective and/or preventive actions,
• limit doses,
• civil defense.

3) Waste management:

• types and forms of nuclear fuel,
• methods of recycling and disposal of nuclear fuel,
• national plan for management of radioactive waste and spent nuclear fuel,
• tasks of the Radioactive Waste Disposal Plant,
• National Radioactive Waste Repository,
• management of radioactive waste,
• discussion of environmental and health issues.

4) Legal acts.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td></td></tr>
<tr><td>Assessment methods and criteria</td><td><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>Written assessment</td><td>56.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td>Recommended reading</td><td><table><tr><td>Basic literature</td><td>No english literature yet.</td></tr><tr><td>Supplementary literature</td><td>No english literature yet.</td></tr><tr><td>eResources addresses</td><td></td></tr></table></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td>1) Sources and specificity of ionizing radiation.

2) Types and forms of nuclear fuel.

3) Methods of recycling and disposal of nuclear fuel.

4) State plan for dealing with radioactive waste and spent nuclear fuel.</td></tr>
<tr><td>Practical activites within the subject</td><td>Not applicable</td></tr>
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