GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Nanotechnology and the human environment, PG_00055425		
Field of study	Nanotechnology		
Date of commencement of studies	February 2025	Academic year of realisation of subject	2025/2026
Education level	second-cycle studies	Subject group	Humanistic-social subject group
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	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Solid State Physics -> Faculty of Applied Physics and Mathematics -> Wydziały Politechniki Gdańskiej		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Marek Chmielewski	
	Teachers		

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	0.0	0.0	15.0	15.0	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	2.0	18.0	50

Subject objectives

The aim of the course is the answer on the question of ethics influence on the accuracy of the science investigation procedure and presentation in the public results of the research and measurement results.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_W03] has general knowledge on current development directions and discoveries in physics, chemistry, technology and applications of nanostructures.	Students will analyze the impact of the development of technology and new scientific content especially with nanotechnology on the environment, they will be able to determine the scope of safe use of advanced technical solutions. He or she can assess the importance of maintaining balance in the field of technological progress.	[SW1] Assessment of factual knowledge
[K7_W07] has extended knowledge concerning potential negative biological and ecological effects resulting from using nanostructures and relevant safety rules.	The student has knowledge of the impact of scientific research, with particular emphasis on nanotechnology techniques, on the human environment. They are able to predict the short- and long-term biological effects of the use of nanotechnology. They are able to critically analyse the effects of scientific research in terms of its potentially negative impacts.	[SW1] Assessment of factual knowledge
[K7_K09] is aware of the importance and understands non-technical aspects and results of engineering work, including its influence on the environment, and the related responsibility for decisions made.	The student learns the issue of ethics in scientific research and is able to effectively verify their validity and can apply them in practice. Student will able to enforce ethical standards in the research work.	[SK2] Assessment of progress of work [SK5] Assessment of ability to solve problems that arise in practice

Subject contents

The seminar will present issues contained in ethical codes applicable in science and discuss the impact of humans on the natural environment. Issues related to threats to the human environment will be presented and ways to avoid them will be discussed.

The project involves preparing issues that can be used in the process of determining the level of knowledge about nanotechnology in society. Course participants will be tasked with creating at least three closed questions that can potentially be used in a survey testing knowledge about nanotechnology and its impact on the natural environment.

<table>
<tr><td>Prerequisites and co-requisites</td><td colspan="3">not required</td></tr>
<tr><td>Assessment methods and criteria</td><td colspan="3"><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>Grade</td><td>50.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td colspan="2">The Ethics of Nanotechnology, Andrew Chen</td></tr>
<tr><td>Supplementary literature</td><td colspan="2">not required</td></tr>
<tr><td>eResources addresses</td><td colspan="2"></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="3">Ethics in nanotechnology.
The impact of research on the economy.
The impact of research on policy.</td></tr>
<tr><td>Work placement</td><td colspan="3">Not applicable</td></tr>
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