



Subject card

Subject name and code	Nanotechnology and human environment, PG_00071036						
Field of study	Nanotechnology, Nanotechnology						
Date of commencement of studies	February 2027	Academic year of realisation of subject			2027/2028		
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			English		
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 -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Marek Chmielewski					
	Teachers	dr inż. Marek Chmielewski					
Lesson types	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						
	eNauczenie source address: https://enauczenie.pg.edu.pl/moodle/course/view.php?id=22291						
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 to provide a general overview of ethical issues in scientific research. In addition, the course will enable students to express their opinions on ethical and humanistic topics. Current codes of conduct applicable in various fields of scientific research will be presented and analyzed, especially in the area of techniques related to the use of nanomaterials and nanostructures.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K7_W07] has extended knowledge of the effects of using nanostructures in biological, environmental, social, economic, and legal dimensions, as well as in a broad non-technical context. Also has extended knowledge of the basics of entrepreneurship, quality management, or safety related to the application of nanomaterials	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 be able to enforce ethical standards in the research work.	[SW2] Assessment of knowledge contained in presentation
	[K7_K03] is aware of the importance and understands the non-technical aspects and consequences of engineering activity, including its impact on the environment, and the responsibility associated with decisions taken	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 be able to enforce ethical standards in the research work. Students will analyze the impact of the development of technology and new scientific content 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.	[SK2] Assessment of progress of work
[K7_W03] has knowledge of current development trends and the latest discoveries in the fields of physics, chemistry, technology, and applications of nanostructures	Students will learn about various research techniques used in the field of research into structure, chemical composition, and atomic structure. Students will learn about and classify physical phenomena used in the field of materials research. They will learn about current trends in nanomaterial technology.	[SW2] Assessment of knowledge contained in presentation	
Subject contents	<p>Course content – project The course covers issues contained in ethical codes applicable in science, and the impact of humans on the natural environment will be discussed. A decision will be made on the scope and method of preparing seminar materials. Issues related to the impact of nanotechnology on the human environment will be discussed. Students will choose a project topic that they will work on independently or in teams of no more than three people.</p> <p>Course content – seminar Students will prepare presentations based on materials provided by the course instructor. The topics will be directly related to ethical issues in nanotechnology.</p>		
Prerequisites and co-requisites	not required		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Preparation and delivery of a seminar	100.0%	100.0%
Recommended reading	Basic literature	Kodeks Etyki Pracownika Naukowego PAN	
		Internet sources	
		COMMISSION RECOMMENDATION of 7 February 2008 on a code of conduct for responsible nanosciences and nanotechnologies research; https://eur-lex.europa.eu/legal-content/PL/TXT/HTML/?uri=CELEX:32008H0345	
	Supplementary literature	not required	
	eResources addresses		
Example issues/ example questions/ tasks being completed	<p>The human impact on the environment.</p> <p>Technology in the hands of man</p>		
Practical activities within the subject	Not applicable		

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