



## Subject card

Subject name and code	Particles that changed the history, PG_00060140						
Field of study	Civil Engineering, Environmental Engineering, Materials Engineering, Informatics, Mathematics, Transport, Management, Management, Materials Engineering, Informatics, Management, Economic Analytics, Economic Analytics, Space and Satellite Technologies, Automatic Control, Cybernetics and Robotics, Automatic Control, Cybernetics and Robotics, Green Technologies, Green Technologies, Coastal and Offshore Engineering, Mechanical and Medical Engineering, Mechatronics, Ocean Engineering, Mechanical Engineering, Materials Engineering, Space and Satellite Technologies, Coastal and Offshore Engineering, Ocean Engineering, Transport and Logistics, Ocean Engineering						
Date of commencement of studies	February 2022	Academic year of realisation of subject			2022/2023		
Education level	second-cycle studies	Subject group					
Mode of study	Full-time studies	Mode of delivery			e-learning		
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	Zakład Technologii Biomateriałów -> Institute of Manufacturing and Materials Technology -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Alicja Stanisławska				
	Teachers		dr inż. Alicja Stanisławska				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	0.0	0.0	30
	E-learning hours included: 30.0						
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	Getting to know the discoveries and events that contributed to changing the course of history, and which are related to the structural structure of substances and materials. Presentation of the way of understanding how our civilization was shaped and how the modern world functions.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K7_U71] is able to apply knowledge from humanistic, social, economic or legal sciences in order to solve problems	The student is able to indicate the differences in the properties of various materials and substances, depending on their structure and the arrangement of molecules or atoms.			[SU3] Assessment of ability to use knowledge gained from the subject		
	[K7_W71] has general knowledge in humanistic, social, economic or legal sciences, including their fundamentals and applications	The student is able to list the events that contributed to the change of history, placing them in the right time.			[SW1] Assessment of factual knowledge		
	[K7_K71] is able to explain the need to apply knowledge from humanistic, social, economic or legal sciences in order to function in a social environment	The student is able to describe the discoveries that contributed to the industrial revolution in the world as well as travel and geographical discoveries.			[SK4] Assessment of communication skills, including language correctness		
Subject contents	Description of the way of shaping civilization and functioning of the modern world. Linking chemistry and history. Presentation of 17 molecules that influenced the fate of the world. Presentation of chemical syntheses and chemical reactions that led to new discoveries. Description and explanation of the influence of small structural changes, such as the position of an atom in a molecule, on significant differences in the properties of a given substance. Discussion of the causes of the great geographical discoveries and the beginning of trade. An explanation of why and how New Amsterdam was renamed New York. Determining the influence of the role of cellulose and cotton on the beginnings of slavery and the industrial revolution in Europe. Discussing how the first explosives were created and the film industry began. Discussing the cause of the communist revolution in China. A description of accidental discoveries that gave rise to new substances such as artificial heroin.						

Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	test	56.0%	100.0%
Recommended reading	Basic literature	Presentations used during classes	
	Supplementary literature	Penny le Couteur, Jay Burreson: Guziki Napoleona, Warszawa 2004;  Jan Kieniewicz, Droga morska do Indii i handel korzenny w latach 1448-1522, Przegląd historyczny, 55/4, 573-603, 1963, online: <a href="https://bazhum.muzhp.pl/">https://bazhum.muzhp.pl/</a> ;  George L. Brawn, Historia materiałów wybuchowych, Warszawa 2001;  Justyna Ubysz, Ewelina Tobiasz; Penicylina pleśń która ratuje życie; Analit 2 (2016) 152154	
	eResources addresses	Adresy na platformie eNauczanie: Cząsteczki, które zmieniły historię - Moodle ID: 28482 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=28482">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=28482</a>	
Example issues/ example questions/ tasks being completed	What was the reason for the desire to travel geographically in the 15th century?  What chemical compound contributed to the start of the industrial revolution in Europe and why?  What has been produced by BAYER plants in the search for a more effective aspirin?		
Work placement	Not applicable		