



Subject card

Subject name and code	Chemistry and nanotechnology of cosmetics, PG_00038596						
Field of study	Nanotechnology						
Date of commencement of studies	October 2022	Academic year of realisation of subject			2024/2025		
Education level	first-cycle studies	Subject group					
Mode of study	Full-time studies	Mode of delivery			at the university		
Year of study	3	Language of instruction			Polish		
Semester of study	5	ECTS credits			3.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Colloid and Lipid Science -> Faculty of Chemistry						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Patrycja Szumała					
	Teachers	dr hab. inż. Patrycja Szumała					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	15.0	0.0	0.0	45
	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	45	0.0	0.0	45		
Subject objectives	Knowing the technology of preparation, composition and use of selected cosmetic products.						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	K6_W07	Has knowledge of the physical and chemical basis of nanotechnology in the field of cosmetics (methods of obtaining nanostructures, types of nanostructures, their properties, basic research methods)			[SW1] Assessment of factual knowledge		
	K6_U06	Able to identify various problems and technological and scientific principles related to the production and application of nanostructures in cosmetics			[SU3] Assessment of ability to use knowledge gained from the subject [SU1] Assessment of task fulfilment		
	K6_K05	Is able to produce various forms of cosmetic formulations, present information about cosmetic formulations in a generally comprehensible manner, evaluate cosmetics available on the market and described in the literature			[SK1] Assessment of group work skills [SK5] Assessment of ability to solve problems that arise in practice		

Subject contents	<p>Structure and function of human skin. Compounds affecting the increase in skin barrier.</p> <p>Types of cosmetic products and their performance.</p> <p>Raw materials in cosmetics and criteria for their selection, with particular focus on biologically active materials.</p> <p>Nanomaterials and nanocarriers in cosmetic.</p> <p>Emulsions, nanoemulsions, microemulsions and their construction and method of stabilization. The technology of manufacturing various types of cosmetic emulsions.</p> <p>Surfactants in cosmetics.</p> <p>Haircare products: shampoos, conditioners, conditioning preparations.</p> <p>Make-up preparations. Powders, shadows, ink, lipstick, nail polish, etc.</p> <p>Technology of perfume products.</p> <p>Technology of deodorants and antiperspirants.</p> <p>Legal regulations on raw materials and cosmetic products.</p>		
Prerequisites and co-requisites	Basic knowledge of organic and inorganic chemistry.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	presence in the laboratory and reports	100.0%	40.0%
	written exam	50.0%	60.0%
Recommended reading	Basic literature	<p>1. J. Marcinkiewicz - Salmonowiczowa, Zarys chemii i technologii kosmetyków, Wyd. Politechniki Gdańskiej, Gdańsk, 1995.</p> <p>2. W.S. Brud, R. Glinka, Technologia Kosmetyków, Oficyna Wydawnicza, Łódź, 2001.</p> <p>3. M.M.Rieger, Surfactants in Cosmetics, M. Dekker, Inc. New York, 1985.</p> <p>4. L. Ho Tan Tai, Formulating Detergents and Personal Care Products, AOCs Press, Champaing, 2000.</p> <p>5. Analysis of Cosmetic Products, ed. A. Salvador, A.Chisvert, Elsevier, Amsterdam, 2007.</p>	
	Supplementary literature	<p>6. J. Przondo, Związki powierzchniowo czynne i ich zastosowanie w produktach chemii gospodarczej, Wydawnictwo Politechniki Radomskiej, 2007.</p> <p>7. K. Gawrońska, K. Kacprzak, Chemia kosmetyczna: ćwiczenia laboratoryjne; UAM, Warszawa 2008.</p> <p>8. R. Glinka, M. Glinka; Receptura kosmetyczna z elementami kosmetologii: tom 1; Oficyna Wydawnicza MA, Łódź, 2008</p>	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	-		
Work placement	Not applicable		