



Subject card

Subject name and code	Semester Project II, PG_00068914						
Field of study	Cosmetic technologies						
Date of commencement of studies	October 2025	Academic year of realisation of subject			2025/2026		
Education level	first-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 Polish language		
Semester of study	2	ECTS credits			8.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Physical Chemistry -> Faculty of Chemistry -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. Agnieszka Gajewicz-Skrętna					
	Teachers	dr hab. Agnieszka Gajewicz-Skrętna dr hab. inż. Błażej Kudłak dr inż. Joanna Grabowska dr inż. Wojciech Wojnowski dr hab. inż. Dorota Warmińska dr inż. Tomasz Majchrzak dr inż. Mateusz Kogut dr inż. Miłosz Wieczór					
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	0.0	100.0	0.0	100
	E-learning hours included: 0.0						
	eNauczanie source address: https://enauczanie.pg.edu.pl/2025/course/view.php?id=5442						
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	100	10.0	90.0	200		
Subject objectives	The course aims to familiarize students with teamwork, as well as with planning, implementing, and reporting successive stages of a cosmetic technology project.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_W06] recognizes technological and scientific possibilities and limitations, as well as organizational and economic ones, in cosmetics technology and related fields	knows and understands the stages involved in the development and analysis of liquid cosmetic products, as well as the technological and scientific principles and potential issues associated with their production.	[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects
	[K6_W07] has knowledge of designing experiments while maintaining intellectual property protection and the principles of bioethics and applicable legal regulations	has the knowledge necessary to identify and test the required control parameters of the cosmetic product being developed.	[SW1] Assessment of factual knowledge [SW3] Assessment of knowledge contained in written work and projects
	[K6_K01] understands the need to constantly expand knowledge in line with the latest scientific achievements, develop professional competences and teamwork skills	is ready to critically evaluate the properties of the cosmetic product being developed and to take responsible action to clarify and improve them	[SK1] Assessment of group work skills [SK2] Assessment of progress of work [SK5] Assessment of ability to solve problems that arise in practice
[K6_U01] designs experiments in accordance with the state of knowledge and the latest scientific literature, using computer data analysis methods	can keep track of documents related to the development of formulations and the analysis of physicochemical parameters; is also capable of analyzing and presenting the obtained results.	[SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools [SU5] Assessment of ability to present the results of task	
Subject contents	<p>Course content – project</p> <p>As part of the project, students will complete the following activities:</p> <p>1/ Conduct a state-of-the-art review of selected groups of cosmetic products, including those prepared during the course.</p> <p>2/ Prepare 4 cosmetic products (1 per group), such as rinses and creams, modified with extracts and compounds (e.g., essential oils, natural extracts or fragrance compounds) with health-promoting, antioxidant, and fragrance-related properties, in quantities and of a quality sufficient for compositional analysis and monitoring.</p> <p>3/ Perform an experimental study to evaluate the degradation of selected additives in the prepared cosmetic samples under (photo)catalytic conditions, including the effects of temperature and UV/VIS radiation.</p> <p>4/ Conduct instrumental and sensory analyses of the prepared samples, including: (1) spectrometric analysis in the UV/VIS range, including spectrum acquisition and absorbance measurements at selected wavelengths; (2) screening chromatographic analysis of the headspace above the samples using fast gas chromatography; (3) application of selected sensory analysis techniques; (4) determination of selected physicochemical constants of cosmetic formulations, such as refractive index, density, and viscosity; and (5) investigation of the effect of surfactant concentration on the surface tension of the product.</p> <p>5/ Analyze and interpret the results, including comparative analysis of spectral data, identification of odor-active compounds, evaluation of odor detection thresholds, analysis using fragrance databases (e.g., AromaChemBase), correlation of sensory analysis results with instrumental data, and assessment of the influence of (photo)catalytic conditions on the degradation of selected cosmetic ingredients and on the sensory profiles of the products.</p> <p>6/ Become familiar with computer-based methods for preliminary data screening, reliable data quality assessment, and visualization of experimental data obtained during earlier stages of the project.</p>		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Partial analytical reports	65.0%	25.0%
	Partial computational reports	65.0%	25.0%
	A final group report	65.0%	25.0%
	Presentation of the results and their discussion	65.0%	25.0%
Recommended reading	Basic literature	<ul style="list-style-type: none"> Heather A. E. Benson; Michael S. Roberts; Vania Rodrigues Leite-Silva, <i>Cosmetic Formulation: Principles and Practice</i>, CRC Press 2021 Dreher, F., Jungman, E., Sakamoto, K., & Maibach, H.I. (Eds.). (2022). <i>Handbook of Cosmetic Science and Technology</i> (5th ed.). CRC Press Chemia fizyczna. Ćwiczenia laboratoryjne. Red.: H.Strzelecki i W.Grzybkowski, Wydawnictwo PG Eksperymentalna chemia fizyczna. Red. Red.: H.Strzelecki i W.Grzybkowski, Wydawnictwo PG Chemia fizyczna, K. Pigoń, Z. Ruziewicz, Wydawnictwo PWN 	
	Supplementary literature	In accordance with the guidelines provided by the project supervisor.	
	eResources addresses		

Example issues/ example questions/ tasks being completed	In accordance with the specified requirements and project assumptions.
Practical activities within the subject	Not applicable

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