GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Quality control in cosmetics production, PG_00060785						
Field of study	Chemical Technology						
Date of commencement of studies	October 2024		Academic year of realisation of subject	2027/2028			
Education level	first-cycle studies		Subject group	Optional subject group Subject group related to scientific research in the field of study			
Mode of study	Full-time studies		Mode of delivery	at the university			
Year of study	4		Language of instruction	Polish			
Semester of study	7		ECTS credits	3.0			
Learning profile	general academic profile		Assessment form	assessment			
Conducting unit	Department of Analytical Chemistry -> Faculty of Chemistry -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		prof. dr hab. inż. Piotr Konieczka				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	30.0	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		3.0	27.0	75	
Subject objectives	The primary aim of this project-based module is to provide a practical overview of the process of assessing and ensuring the quality of cosmetic products, in accordance with statutory regulations, whilst also taking into account the guidelines on Good Laboratory and Manufacturing Practices, as well as the necessary reporting requirements, etc.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W08] has knowledge of raw materials and products in cosmetics, fat chemistry and technology, knows the technology of obtaining cosmetic products and methods of assessing their properties	has knowledge of the raw materials and products used in cosmetics, as well as the chemistry and technology of fats; they are familiar with the manufacturing processes involved in the production of cosmetic products and the methods used to assess their physicochemical and functional properties.	[SW3] Assessment of knowledge contained in written work and projects
[K6_U06] is able to select the chemical and technological concept of the production method, is able to justify the suitability of the raw materials used, analyses and evaluates the quality of the products obtained, critically analyses the functioning of existing technical solutions and evaluates these solutions	is able to select the appropriate chemical and technological concept for a production method, justifying the choice of raw materials; analyse and assess the quality of the products obtained; and critically evaluate the performance of existing technical solutions, drawing conclusions regarding their suitability and effectiveness.	[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools
[K6_U05] recognises and identifies the relationship between technological issues, implemented in industrial practice, and their impact on various elements of the environment, in the context of mechanisms and conditions of sustainable development, recognizes their systemic and non-technical aspects	identifies and analyses the relationships between technological processes and their impact on the environment, taking into account the mechanisms of sustainable development as well as the systemic and non-technical aspects of industrial processes.	[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools
[K6_K05] is aware of the social role of a technical university graduate, and in particular understands the need to formulate and communicate to the public, in particular through the mass media, information and opinions on the achievements of technology and other aspects of engineering activity	is aware of the social role of a graduate of a technical university and understands the importance of communicating information and opinions to the public about technological achievements and other aspects of engineering practice, including through the media, whilst ensuring that such information is accurate and accessible.	[SK2] Assessment of progress of work [SK5] Assessment of ability to solve problems that arise in practice

Subject contents

Course content – lecture

1. Legislative requirements regarding the quality of cosmetic products standards, recommendations, requirements, legislation.
2. Fundamentals of the quality assurance and control system for analytical results, including applicable standards and legislation in this area.
3. Quality management in cosmetics production:
- quality control of raw materials,
- quality control of the production process,
- product quality control.
4. Basic statistical tools used in quality control and assurance. Interpretation of test results.

Course content – project

1. Basic physicochemical testing of cosmetics (including density, surface tension, etc. depending on the product being analysed).
2. Chemical analyses of selected cosmetics (content of heavy metal ions, active substances, etc. depending on the product being analysed). The entire analysis process, from sample preparation through analysis to the interpretation of the measurement results obtained.
3. Determination of the stability of cosmetics using the measurement results obtained.
4. Interpretation of the results obtained to determine/confirm product quality.
5. Preparation of a quality testing report.

Prerequisites and co-requisites

Entry requirements include a knowledge of general and organic chemistry and the fundamentals of chemical technology, including production processes and methods for assessing the quality of raw materials and finished products. Additional requirements include a basic understanding of biology and microbiology, the ability to use specialist literature in English, laboratory experience, and an interest in current trends in cosmetics manufacturing technology.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
submitted project	60.0%	60.0%
active participation in discussions during lectures	60.0%	40.0%

Recommended reading

Basic literature

1. R. Lochhead, H. Maibach, Cosmetic Science and Technology, 3rd Edition, Informa Healthcare, 2006.
2. M. L. Hair, P. A. Steckel, Introduction to Cosmetic Science, Wiley, 2012.
3. M. D. W. Griffiths, Quality Assurance for the Cosmetics Industry, Woodhead Publishing, 2017.
4. Barel, M. Paye, H. Maibach, Handbook of Cosmetic Science and Technology, 4th Edition, CRC Press, 2014.
5. K. L. Mittal, Surfactants in Cosmetics, Marcel Dekker, 2003.

	Supplementary literature	Bibliography on the subject matter.
	eResources addresses	
Example issues/ example questions/ tasks being completed	1. Fundamentals of quality assurance systems in cosmetics manufacturing (GMP, ISO 22716). 2. Quality requirements for raw materials and cosmetic products. 3. Methods for controlling and assessing the quality of cosmetics physicochemical, microbiological and sensory. 4. Documentation and recording of the manufacturing process. 5. Risk analysis and quality management in cosmetics laboratories. 6. Current legal standards and regulations concerning cosmetics in the EU and Poland. 7. What is the GMP system and what is its significance in cosmetics manufacturing? 8. Which physicochemical parameters are key when assessing the quality of creams and emulsions? 9. What methods are used to detect microbiological contamination in cosmetics? 10. How are the manufacturing process and quality control documented in a cosmetics facility? 11. What consequences might a cosmetics manufacturer face for failing to meet quality requirements?	
Practical activites within the subject	Not applicable	

Document generated electronically. Does not require a seal or signature.