GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

| | | | |
|---|---|---|---|
| Subject name and code | COSMETOLOGY IN BIOMEDICAL APPLIATIONS, PG_00053535 | | |
| Field of study | Biomedical Engineering, Biomedical Engineering, Biomedical Engineering | | |
| Date of commencement of studies | October 2023 | Academic year of realisation of subject | 2026/2027 |
| Education level | first-cycle studies | Subject group | Optional subject group<br>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<br>- |
| Semester of study | 7 | ECTS credits | 1.0 |
| Learning profile | general academic profile | Assessment form | assessment |
| Conducting unit | Department of Biotechnology and Microbiology -> Faculty of Chemistry -> Faculties of Gdańsk University of Technology | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | prof. dr hab. inż. Adam Macierzanka | |
| | Teachers | prof. dr hab. inż. Adam Macierzanka | |

**Lesson types**

| Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
|---|---|---|---|---|---|---|
| Number of study hours | 15.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15 |

E-learning hours included: 0.0

eNauczanie source address: https://enauczanie.pg.edu.pl/2025/course/view.php?id=9329

Moodle ID: 9329 Kosmetologia w Zastosowaniach Biomedycznych
https://enauczanie.pg.edu.pl/2025/course/view.php?id=9329

**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 | 15 | 1.0 | 9.0 | 25 |

**Subject objectives**

Gaining knowledge of the technology of preparation, composition, analysis and the use of various groups of cosmetic products in the context of biomedical applications of cosmetic preparations.

**Learning outcomes**

| Course outcome | Subject outcome | Method of verification |
|---|---|---|
| [K6_W52] Knows and understands, to an advanced extent, selected aspects of chemistry and biochemistry, constituting general knowledge related to the field of study | The student has acquired extensive knowledge in the field of chemistry and biochemistry, particularly concerning the biomedical aspects of cosmetology and cosmetic products. | [SW1] Assessment of factual knowledge |
| [K6_U06] can analyse the operation of components, circuits and systems related to the field of study, measure their parameters and examine technical specifications | The student is able to critically analyze the interaction of cosmetic product components from the perspective of how their mutual interactions affect the performance characteristics of the final products, including the technical aspects of using such products in biomedical applications. | [SU1] Assessment of task fulfilment<br>[SU2] Assessment of ability to analyse information<br>[SU4] Assessment of ability to use methods and tools |

**Subject contents**

Course content – lecture

Structure and function of human skin. Compounds reported to increase the skin barrier. Types of cosmetic products and their effects. Materials used in cosmetics and criteria of their selection, with particular emphasis on biologically active materials. Cosmetic emulsions and their structure and stabilization methods. The surfactants in cosmetics. The technology for producing various types of cosmetic emulsions. Regulations concerning cosmetic materials and cosmetic products. Understanding the mechanisms of action
of advanced carrier structures of biologically active substances in terms of the biomedical use of cosmetic preparations.

<table>
<tr><td>Prerequisites and co-requisites</td><td colspan="3">Basic knowledge of organic chemistry and selected analytical methods.</td></tr>
<tr><td>Assessment methods and criteria</td><td colspan="3"><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>Written exam</td><td>50.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td colspan="2">1. J. Marcinkiewicz - Salmonowiczowa, Zarys chemii i technologii kosmetyków, Wyd. Politechniki Gdańskiej, Gdańsk, 1995. 2. W.S. Brud, R. Glinka, Technologia Kosmetyków, Oficyna Wydawnicza, Łódź, 2001. 3. M.M. Rieger, Surfactants in Cosmetics, M. Dekker, Inc. New York, 1985. 4. L. Ho Tan Tai, Formulating Detergents and Personal Care Products, AOCS Press, Champaing, 2000. 5. Analysis of Cosmetic Products, ed. A. Salvador, A.Chisvert, Elsevier, Amsterdam, 2007.</td></tr>
<tr><td>Supplementary literature</td><td colspan="2">6. J. Przondo, Związki powierzchniowo czynne i ich zastosowanie w produktach chemii gospodarczej , Wydawnictwo Politechniki Radomskiej, 2007. 7. K. Gawrońska, K. Kacprzak, Chemia kosmetyczna: ćwiczenia laboratoryjne; UAM, Warszawa 2008. 8. R. Glinka, M. Glinka; Receptura kosmetyczna z elementami kosmetologii: tom 1; Oficyna Wydawnicza MA, Łódź, 2008</td></tr>
<tr><td>eResources addresses</td><td colspan="2"></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="3">Those will be directly related to the topics described above in the "Class structure" section.</td></tr>
<tr><td>Practical activites within the subject</td><td colspan="3">Not applicable</td></tr>
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