Karta przedmiotu / Course description

Informacje ogólne o przedmiocie / General information about the course	
1. Kierunek studiów / Major of study: Pharmacy	**2. Poziom kształcenia / Study level:** Uniform Master's Program **3. Forma studiów / Form of study:** intramural
4. Rok / Year: 4	**5. Semestr / Semester:** VIII
6. Nazwa przedmiotu / Course name: Basics of cosmeceutical biopharmacy	
7. Status przedmiotu / Course status: required	
8. Jednostka realizująca przedmiot, adres, e-mail: **Name of Department, mailing address, e-mail:** Department of Biopharmacy, 8 Jedności Str., 41-200 Sosnowiec, (32) 364 12 49, e-mail: echodurek@sum.edu.pl	
9. Treści programowe przedmiotu Course contents: Acquiring knowledge about cosmetic agents that may have a therapeutic effect and the influence of individual pathophysiological factors, physicochemical properties of compounds and cosmeceutical formulations on pharmaceutical availability and bioavailability of active substances. Preparing students to provide patients with reliable knowledge in the proper selection and practical use of cosmetic agents with therapeutic effect. Learning outcomes/ reference to learning outcomes indicated in the standards: for **knowledge** - student knows and understands: K1_W03; K1_W06; K1_W07; K1_W10; K1_W17; K1_W21 for **skills** student can do: K1_U06; K1_U23; K1_U24; K1_U29 for **social competences** student is ready to: K1_K01.	
10. liczba godzin z przedmiotu / Number of hours for the course	20h
11. liczba punktów ECTS dla przedmiotu / Number of ECTS points for the course	2
12. Formy i tematy zajęć / Forms and topics of classes	**Liczba godzin** **Number of hours**
12.1. Lectures	
Biopharmaceutical aspects of cosmeceuticals applied to the skin. Influence of physicochemical properties of active substances, auxiliary substances, substrates, formulations on their penetration through the skin.	5h
12.2 Laboratory classes	
1. Basics of UV-Vis spectrophotometry. Spectrophotometric determination of d-panthenol in selected cosmetics.	3h
2. Determination of pharmaceutical availability of biologically active substances contained in cosmetic ointments.	3h
3. Methods for determining the cytotoxicity of selected compounds as an important stage in the study of the metabolism of active substances in cosmeceuticals.	3h
4. Evaluation of the release rate of biologically active substances from hydrogel substrates.	3h
5. Determination of pharmaceutical availability of biologically active substances from selected cosmetic preparations using the agar plate method.	3h

13. Literatura / Readings 1. Jankowski A, Dyja R, Sarecka-Hujar B. Dermal and transdermal delivery of active substances from semisolid bases. Indian J Pharm Sci. 2017; 79(4): 488-500. 2. Supe S, Takudage P. Methods for evaluating penetration of drug into the skin: A review. Skin Res Technol. 2021; 27(3): 299-308. 3. Hewitt NJ, Grégoire S, Cubberley R, et al. Measurement of the penetration of 56 cosmetic relevant chemicals into and through human skin using a standardized protocol. J Appl Toxicol. 2020; 40(3): 403-415. 4. Zagórska-Dziok M, Sobczak M. Hydrogel-Based Active Substance Release Systems for Cosmetology and Dermatology Application: A Review. Pharmaceutics. 2020; 12(5): 396.	
14. Kryteria oceny – szczegóły / Detail evaluation criteria Zgodnie z zaleceniami organów kontrolujących / In accordance with the recommendations of the inspection bodies Zaliczenie przedmiotu - student osiągnął zakładane efekty uczenia się / Completion of the course – student has achieved the assumed learning outcomes Szczegółowe kryteria zaliczenia i oceny z przedmiotu są zamieszczone w regulaminie przedmiotu / Detail criteria for completion and evaluation of the course are specified in the course regulations	