



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Development of a Pharmaceutical and Cosmetic Product - Cosmetic Recipe

### Course

Field of study

Pharmaceutical Engineering

Area of study (specialization)

-

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

3/6

Profile of study

general academic

Course offered in

polish

Requirements

elective

### Number of hours

Lecture

0

Laboratory classes

0

Other (e.g. online)

0

Tutorials

15

Projects/seminars

0

### Number of credit points

1

### Lecturers

Responsible for the course/lecturer:

Tomasz Osmałek DSc (tosmalek@ump.edu.pl)

Responsible for the course/lecturer:

Barbara Jadach, PhD (bajadach@ump.edu.pl)

### Prerequisites

Basic knowledge of drug and cosmetic form technologies.

### Course objective

Acquisition by students of selected practical skills and / or knowledge in the areas of issues related to the development of a pharmaceutical and cosmetic product on a laboratory scale and its production on an industrial scale. Selected issues regarding cosmetic preparations (solvents; additive substances; plant raw materials; durability); natural materials in cosmetology



## Course-related learning outcomes

### Knowledge

1. Student knows the physicochemical properties of substances for use in cosmetic products affecting their biological activity. [K\_W13]
2. Student has a basic knowledge of standards and norms, knows the methods and techniques of testing cosmetic products. [K\_W23][K\_W24]
3. Student has detailed knowledge of substances for cosmetic use, quality analysis and control, technology, knows the rules for creating selected parts of the characteristics of the cosmetic product, knows the requirements for assessing the quality of substances and cosmetic products. [K\_W25]

### Skills

1. Student is able to use scientific literature. [K\_U1]
2. Student is able to: perform tests in the field of cosmetic quality assessment, interpret and document the results of product quality tests. [K\_U8]
3. Is able to use the basic equipment and apparatus used in the technology of cosmetic forms, performs quality assessment tests, and interprets and documents the results of product quality tests. Student demonstrates the ability to discuss the technology of drug form and cosmetic. [K\_U9]

### Social competences

He is ready to critically assess his knowledge, understands the need for further education, supplementing disciplinary knowledge and raising his professional, personal and social competences, understands the importance of knowledge in solving problems and is ready to consult experts. [K\_K1]

## Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Students are required to actively participate in the issues discussed and to submit correctly completed documentation regarding the issues of the given exercise. Completion of the course will be based on the final written test (min. 60% of correct answers), containing test and open questions.

## Programme content

Students will learn about:

- Calculations in cosmetics technology. Calculations used in the cosmetic formulations (dilution of higher concentration solutions, "alligation method").
- Cosmetic solvents. Excipients in cosmetics technology. Dispersion classification, FPXI solubility of substances, division of solvents, water in cosmetics, non-polar solvents in cosmetics.
- Cosmetic forms. Physicochemical characteristics of selected forms of cosmetics: solutions, suspensions, emulsions, lotions, tonics, hair conditioners, creams.



- Plant-based formulations. Extraction, plant extracts. Extraction methods, choice of solvents depending on the physicochemical properties of extracted active substances, types of extracts from plant materials and methods of their production, analysis of the preparation of preparations containing tinctures and extracts, e.g. creams, lotions, lotions.
- Stability of active substances in manufactured cosmetics. Stability of fatty components, physicochemical structure and protein stability, collagen, keratin, factors determining vitamin stability.
- Natural materials in cosmetology.

### Teaching methods

The subject is implemented in the form of practical classes in the laboratory, combined with a theoretical introduction. As part of independent work during classes, students work with source materials, participate in discussions, formulate their own opinions, prepare a presentation.

### Bibliography

Basic

1. Martini M-Cl., Kosmetologia i farmakologia skóry, PZWL, Warszawa 2007.
2. Arct J., Pytkowska K. Leksykon surowców kosmetycznych. Wydawnictwo Wyższej Szkoły Zawodowej Kosmetyki i Pielęgnacji Zdrowia, Warszawa 2010.
3. Fink E. Kosmetyka. Przewodnik po substancjach czynnych i pomocniczych, MedPharm Polska, Wrocław 2011.

Additional

### Breakdown of average student's workload

	Hours	ECTS
Total workload	30	1,0
Classes requiring direct contact with the teacher	15	0,5
Student's own work (literature studies, preparation for tutorials, preparation for tests) <sup>1</sup>	15	0,5

<sup>1</sup> delete or add other activities as appropriate