

**Course name: Basics of bio-cosmetics production**

ECTS	6
Course status	<i>facultative</i>
Course final assessment /evaluation of outcomes	<i>the grade point average of the written reports and test</i>
Prerequisite	<i>knowledge of plant biology and the basics of biochemistry at the level of undergraduate or engineering agricultural / natural studies</i>

**Main field of study:**

Agriculture and Horticulture, Biology and Biotechnology (Erasmus+)

Educational profile	<i>general academic</i>
Code of studies and education level	<i>bachelor/engineer (SI) or master of science (SM)</i>
Semester of studies	<i>winter or summer</i>
Language of instruction	<i>English</i>

**Course offered by:**

Name of faculty offering the course	Faculty of Biotechnology and Horticulture
Name of department offering the course	Department of Horticulture
Course coordinator	dr inż. Barbara Domagała

**Learning outcomes:**

Symbol of outcome	Description of the learning outcome	Reference to main field of study outcomes	Area symbol*
<b>KNOWLEDGE – student knows and understands:</b>			
BCP_W1	composition of cosmetics, with particular emphasis on plant raw materials used in their production	TRL2_W01 TRL2_W04	R, P
BCP_W2	effect of cosmetics on the skin and the mechanisms of their action	TRL2_W01 TRL2_W04	R, P
BCP_W3	species of horticultural plants used in cosmetology and cosmetology and the active substances obtained from them	TRL2_W01 TRL2_W04	R, P
BCP_W4	the history of cosmetology	TRL2_W01 TRL2_W04	R, P
BCP_W5	effects of cosmetics on the human body	TRL2_W01 TRL2_W04	R, P
BCP_W6	basics of the law relating to the cosmetics market in the European Union	TRL2_W01 TRL2_W04	R, P
<b>SKILLS – student is able to</b>			
BCP_U1	modifies the methods of preparing plant materials for cosmetic use	TRL2_U01 TRL2_U05	R, P
BCP_U2	develops agrotechnics for the cultivation of more important species with the aim of using the product in cosmetics	TRL2_U01 TRL2_U05	R, P
BCP_U3	prepare selected cosmetics of plant origin	TRL2_U01 TRL2_U05	R, P
BCP_U4	determine the suitability of a given active plant ingredient for cosmetic purposes	TRL2_U01 TRL2_U05	R, P
<b>SOCIAL COMPETENCIES – student is ready to:</b>			
BCP_K1	define priorities for the proper selection and preparation of plant materials for use in cosmetics	TRL2_K02	R, P

## Teaching contents

Lectures:		30 hours
Topics	<p>History of cosmetology - the use of cosmetic products from antiquity to the present day</p> <p>The mechanisms of action of cosmetics and other body care products. Differences between cosmetics, cosmeceuticals and drugs and dietary supplements</p> <p>Anatomical and physiological structure as well as functions of skin, hair and nails</p> <p>Classification of cosmetics according to their operation and the specificity of their intended use</p> <p>Products of natural origin used in the cosmetics industry, in particular products of plant origin and their effects on the human body</p> <p>Cosmetics of natural origin. Active substances contained in individual plant species used in cosmetics - their action and use</p> <p>Fundamentals of the law relating to the production, marketing and sale of cosmetic products in the European Union</p> <p>Development of instructions on the choice of species, preparation methods and application of the preparation</p>	
Accomplished learning outcomes	BCP_W1, BCP_W2, BCP_W3 BCP_W4, BCP_W5, BCP_W6	
Means of verification, rules and criteria of assessment	<i>evaluation is based on test questions, in order to earn a positive mark at least 51% of answers must be correct. Contribution to the final grade from the course – 65%.</i>	
Classes:		30 hours
Topics	<p>Obtaining plant material for the production of cosmetics (oils, decoctions, extracts, infusions, dry matter, ground product, etc.)</p> <p>Principles of proper cultivation of plants with an emphasis on obtaining the highest possible efficiency when using plant material for the production of cosmetics</p> <p>Establishing in-vitro cultivation of plants with cosmetic and healing properties</p> <p>Production of cosmetics with washing, caring, fragrance, moisturizing properties, etc.</p> <p>Presentation of the production method, application and effectiveness of the plant-based cosmetic product produced by them</p>	
Accomplished learning outcomes	BCP_U1, BCP_U2, BCP_U3, BCP_U4, BCP_K1, BCP_K2, BCP_K3	
Means of verification, rules and criteria of assessment	<i>evaluation is based on: - individual reports from laboratory activities, contribution to the final grade from the course – 15%; - two tests from the laboratory topics (at least 51% of correct answers to earn a positive mark), contribution to the final grade from the course – 20%.</i>	
<b>References:</b>		
Basic	Dweck, A. C. (2011). <i>Formulating natural cosmetics</i> . Allured Business Media. Dayan, N. (2008). <i>Skin aging handbook: an integrated approach to biochemistry and product development</i> . William Andrew.	
Supplementary	Iwata, H., & Shimada, K. (2012). <i>Formulas, ingredients and production of cosmetics: technology of skin-and hair-care products in Japan</i> . Springer Science & Business Media. Verrill, A. H. (2013). <i>Perfumes and Spices: Including an Account of Soaps and Cosmetics-The Story of the History, Source, Preparation, And Use of the Spices, Perfumes, Soaps, And Cosmetics Which Are in Everyday Use</i> . Read Books Ltd.	

## Structure of learning outcomes

Area of academic study: agriculture and horticulture	3.0 ECTS**
Area of academic study: biological sciences	3.0 ECTS**

**Structure of student activity**

Contact hours	68	hrs.	2.7	ECTS**
Including:				
lectures	30	hrs.		
classes and seminars	30	hrs.		
consultations	4	hrs.		
participation in research	...	hrs.		
obligatory traineeships	...	hrs.		
participation in examination	4	hrs.		
e-learning	...	hrs.	...	ECTS**
student own work	62	hrs.	3.3	ECTS**

\*areas of academic study in the fields of: P – biological sciences; R – agriculture and horticulture

\*\* stated with an accuracy to 0.1 ECTS, where 1 ECTS = 25 - 30 hours of classes