Study program : PHARMACY

Type and level of studies: Integrated academic studies, Level 1/2

Course unit: INDUSTRIAL PHARMACY WITH COSMETOLOGY

Teacher in charge: Professor Marina Tomović, PhD, M.pharm

Language of instruction : ENGLISH

ECTS: 5

Prerequisites: Enrolled in the seventh semester of Integrated academic studies of Pharmacy.

Semester*:* WINTER SEMESTER

Course unit objective: Introducing students to the basic principles of industrial production (development of drug formulation, stability, legal acts related to development, production and storage). Characteristics and types of devices used in the production of drugs. Introduction to raw materials for the production of dermo-cosmetic preparations, types, forms and manufacturing procedures as well as the effects of these products.

Learning outcomes of Course unit:
Upon completion of the course in Industrial Pharmacy with Cosmetology, students are expected to acquire basic knowledge about:

- Introduction to the principles of operation and types of devices used in the manufacture of drugs.
- Introducing students to the basic aspects of development, production and quality assurance of medicines.
- Knowledge about types and procedures for making dermo-cosmetic products.
- Knowledge about potential side effects of various cosmetic products.

At the end of the course in Industrial Pharmacy with Cosmetology, students are expected to master the following skills:

- Quality assessment and production methods of pharmaceutical forms.
- To properly and efficiently use the acquired knowledge of pharmaceutical technology when making decisions about the preparation.
- Ability to properly use professional literature.
- Acquiring knowledge in the field of new drugs.
- Acquiring knowledge in the field of new aspects of the production of old drug formulations, as well as the formulation of new ones.
- Rational solution of practical problems in the pharmaceutical industry.
- Proper choice of active and auxiliary substances in the production of cosmetic products.

Course unit contents

Theoretical and practical classes

MODULE 1- Regulations governing the development, production, storage of medicines and cosmetic products. Influence of formulation factors and production process on the stability of drugs and cosmetic products. Methods for testing drug stability.

MODULE 2- Pharmaceutical-technological operations used in the pharmaceutical industry. Characteristics of devices used in the production of various pharmaceutical forms

MODULE 3- Selection of ingredients for the production of dermo-cosmetic products, formulation, selection of active and auxiliary substances for the production of various cosmetic products.

Literature

- Јовановић М., Ђурић З. Основи индустријске фармације. Нијанса. Београд 2005.
- Васиљевић Д., Савић С., Ђорђевић Љ., Крајишник Д. Приручник из козметологије, друго издање. Наука, Београд 2009.
- Ђурић З., Фармацеутска технологија са биофармацијом, I део, уџбеник, Нијанса, Земун, 2004.
- Avdeef A., Absorption and Drug Development: Solubility, Permeability, and Charge State, John Wiley & Sons, Inc., 2003.

- Katzung G. Bertram, Drug Therapy, London: Prentice-Hall International, 1991.
- Јовановић М., Практикум из фармацеутске технологије са биофармацијом, I део, уџбеник за практичну наставу, Нијанса, Земун, 2004.;
- Troy David, Remington -The Science and Practice of Pharmacy, Baltimore: Lippincot Williams and Wilkins, 2006;
- Swabrick J, Boylan J. Encyclopedia of Pharmaceutical Technology, sec.ed.,vol. 1-3, Marcel Dekker, New York, Basel, 2002.
- Ansel Howard, Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems, Lippincot Williams & Wilkins, Phyladelphia, 1995.

Number of active teaching hours				**Other classes**
Lectures: 30	Practice: 15	Other forms of classes:	Independent work:	

Teaching methods: Lectures, practice in a clinic, clinical problems solving

Examination methods (maximum 100 points)

Exam prerequisites	**No. of points:**	**Final exam**	**No. of points:**
Student's activity during lectures	**30**	oral examination	**70**
practical classes/tests		written examination	
Seminars/homework		.....	
Project			
Other			

Grading system		
Grade	**No. of points**	**Description**
10	**91-100**	Excellent
9	**81 – 90**	Exceptionally good
8	**71 – 80**	Very good
7	**61 – 70**	Good
6	**51 – 60**	Passing
5	< 50	Failing

(Table 5.2) Course unit description