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CD 8.5.1 DISCIPLINE CURR!CULUM

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FACULTY OF PHARMACY

STUDY PROGRAM 0916.1 PHARMACY

CHAIR OF DRUG TECHNOLOGY

APPROVED

at the meeting of the Commission for Quality Assurance and Evaluation of the Curriculum faculty of Pharmacy Minutes No. 2 of 21.12.2017

> Chairman, Doctor of pharmacy, Associate Professor

Livia Uncu

APPROVED

at the Council meeting of the Faculty of
Pharmacy
Minutes No.2 of 22.12.2017

Dean of Faculty, Doctor of pharmacy, Associate Professor

Nicolae Ciobanu 10000

APPROVED

approved at the meeting of the chair of drug technology
Minutes No.3 of 26.10.2017
Head of chair, habilitated doctor in pharmacy,

University Professor

Eugen Diug

SYLLABUS DISCIPLINE TECHNOLOGY OF HOMEOPATHIC PRODUCTS, VETERINARY AND COSMETICS

Integrated studies

Type of course: optional discipline



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I. INTRODUCTION

 General presentation of the discipline: place and role of the discipline in the formation of the specific competences of the professional / specialty training program

Homeopathic products. Homeopathy is a medicine that treats the law of similitude and uses remedies in dynamically infinite doses. The similitude similius current principle shows the parallelism of action between the toxic power of a substance and its therapeutic power: - any pharmacologically active substance causes, in a weighted dose, a healthy and sensitive person, an ensemble of symptoms = a pathogenesis: - the patient presents an assembly of morbid symptoms according to the disease and its reactivity - healing can be achieved by administering in low or infinitesimal doses the substance whose experimental toxic symptoms in a healthy man are similar to the symptoms of the patient.

Veterinary products. Veterenaria is a science that deals with the study of auxiliary substances, active substances and the technology of preparations used for the prophylaxis and treatment of animal diseases.

Cosmetics. Cosmetology: the science of external skin care to preserve: the elasticity of the dermis, the tonicity of the skin muscles, freshness and youthful appearance with the help of specific treatments and preparations. It is also an art that, by the means used, corrects or attenuates some imperfections, or reveals its own characteristic features

• Mission of the curriculum in professional trainingLanguage of the course:

Homeopathic products. Acquiring the principles of preformulation and formulation of homeopathic medicines. Monitoring of homeopathic strains for the production of top quality homeopathic medicines in decimal (DH), centhelial (CH), and pseudomimex (LM) dilutions. Formation of concepts of homeopathic medicines as an alternative to allopathic medicines. Veterinary products. Acquiring the principles of preformulation and formulation of veterinary medicines. Contemporary Concepts of Veterinary Products.

Cosmetics. The study of Cosmetic Removal Technology aims at creating the theoretical basis of the processes of accumulation of skills and practical skills in the preparation of cosmetic products.

• Beneficiaries: students of the V year, faculty Pharmacy.



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II. MANAGEMENT OF THE DISCIPLINE

Code of discipline		S.09.A.095	
Name of the discipline		The homeopathic, veterinary and cosmetic products technology	
Persons in charge of the discipline			
Year	V	Semester/Semesters	IX
Total number of hours, including: 60		60	
Lectures 14		laboratory hours	28
Seminars	-	Self-training	18
Clinical internship			
Form of assessment	C	Number of credits	2



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III. TRAINING AIMS WITHIN THE DISCIPLINE

At the end of the discipline study the student will be able to:

• at the level of knowledge and understanding:

A. Homeopathic Products:

- -to determine the objectives and content of homeopathy;
- -to determine the object of study of the technology of homeopathic products; \Box to define the concepts of homeopathy;
- -to identify the main quality parameters of homeopathic strains and homeopathic medicinal products;
- -to know the principles of preforming and formulation of homeopathic medicinal products.

B. Veterinary products.

- -to determine the object of study of the technology of veterinary products; □ to identify the main quality parameters of veterinary medicinal products;
- to know the principles of preforming and formulation of veterinary medicinal products.

C. Cosmetic products.

- to determine the objectives and content of cosmetology;
- to determine the object of the study of cosmetic products technology;
- to know the fundamental methods of the stability of cosmetic preparations;
- to know the principles of organizing the process of producing cosmetic preparations.

• the application level:

A. Homeopathic Products

- to identify the peculiarities of the application of pharmaceutical technology for the preparation;
- to classify the principles of preformulation and formulation of homeopathic medicinal products;
- to argue the principles for selecting methods for the preparation of homeopathic medicinal products;
- -compare the practical experience and the principles of homepatiei at various stages of evolution in the preformulation and formulation of medicinal products;
- to interpret the quality rules of homeopathic medicinal products;

B. Veterinary Products

- to identify the peculiarities of the application of pharmaceutical technology for the preparation;
- to interpret the quality rules of veterinary medicinal products;

C. Cosmetic Products

-to identify the peculiarities of the application of pharmaceutical technology for the preparation



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- to interpret the quality standards of cosmetic products;

at the integration level:

A. Homeopathic products

- Identify the particularities of the application of pharmaceutical technology for preparation homeopathic medicines;
- Classify the principles of pre-formulation and formulation of homeopathic medicines;
- To justify the principles of selecting homeopathic medicine preparation methods;
- Compare the practical experience and the principles of homeopathy at various stages of evolution in preformulation and formulation of drugs;
- Interpret quality standards for homeopathic medicines;

B. Veterinary products

- Identify the particularities of the application of pharmaceutical technology for preparation veterinary medicines;
- Interpret the quality standards of veterinary medicines;

C. Cosmetics products

• Identify the particularities of the application of pharmaceutical technology for preparation



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V. PROFESSIONAL TERMS AND CONDITIONS

Homeopathic, veterinary and cosmetic products address a wide range of diverse concerns and requirements such as:

- presentation of products;
- the composition of the products;
- - microbiological contamination;
- physicochemical properties;
- toxicological properties;
- clinical aspects;
- - consumer information and control services (labeling requirements);
- - the technological process of producing the products;
- - storage conditions;
- - labeling;
- Instructions on preservation, storage, use.

Homeopathic and cosmetic products proposed for human consumption must satisfy the requirements for which they are intended, be harmless, contain no contaminants, microorganisms and other organisms and biological substances, be produced and placed on the market under appropriate hygiene conditions, force.



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VI. THEMES AND ESTIMATE ALLOCATION OF HOURS

Lectures, practical hours/laboratory hours/seminars and self-training

			Number of hours		
No. d/o	THEME		Practic al hours	Self- training	
1.	Homeopathic products. Complementary and alternative medicine. The formal aspect of homeopathy. Historic. Homeopathy in the Republic of Moldova. Definitions. General notions. Allopathy vs Homeopathy. Homeopathic pharmacology. Basic principles of homeopathy. Health-sickness concept in the vision of homeopathy. Homeopathic Materia Medica. The organ of medicine.	2	-	3	
2.	Electromagnetic body notion and bioenergetic centers. The three levels of the human being: physical, emotional and mental. The vital force. Hypotheses brought to homeopathic spine: the adjusted solvent hypothesis; molecular disruption theory; biphonic theory; quantum theory of information;	2	-	3	
3.	Classification of homeopathic products. Homeopathic prescription. Ways of administration. Dosage. Raw materials. Manufacturing technologies. Preparation of Homeopathic Dilatations. Dynamic dilutions. Preparing LMs. Homeopathic specialties. Stability. Conservation. Storage.	2	12	2	
4.	Veterinary products Definitions. Terminology. Short history. Pharmacology, Pharmacokinetics, Pharmacodynamics, Pharmacology, Veterinary Pharmacotherapy.	2	4	2	
5.	Technology of Veterinary Medicines. Notion. Substances active and auxiliary substances used as raw materials in the preparation of veterinary products.	2	4	3	
6.	Cosmetic products History of cosmetology. Cosmetology as a science. Prophylactic Cosmetology. Skin structure.	2	4	2	
7.	Basic directions of use of cosmetics and their classification. Cosmetic preparations.	2	4	3	
	Total	14	28	18	



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VII. REFERENCE OBJECTIVES OF CONTENT UNITS

Objectives	Content units	
Theme (chapter) 1. Homeopathic products technology		
 Define homeopathy as part of complementary and alternative medicine. Know specific terminals used in homeopathy To know the history of the development of homeopathy. Homeopathy in the Republic of Moldova. Know the basic principles of homeopathy. Know the concept of health-illness in the vision of homeopathy. Describe Homeopathic Medicine. Know the main postulates of the Organon of Medicine written by Samuil Hahnemann. 	Complementary and alternative medicine. The formal aspect of homeopathy. Historic. Homeopathy in the Republic of Moldova. Definitions. General notions. Allopathy vs Homeopathy. Homeopathic pharmacology. Basic principles of homeopathy. Health-sickness concept in the vision of homeopathy. Homeopathic Materia Medica. The organ of medicine.	
 To know the notions of elctromagnetic body and bioenergetic centers. Describe the holistic appearance of the human body To know the notion of vital force and its role in maintaining the balance of the human body. To know the main hypotheses in support of homeopathy as part of complementary and alternative medicine. 	Electromagnetic body notion and bioenergetic centers. The three levels of the human being: physical, emotional and mental. The vital force. Hypotheses in support of homeopathy: the adjusted solvent hypothesis; molecular disruption theory; biphonic theory; quantum theory of information;	
 Know the classification of homeopathic products. Know the prescriptions of the homeopathic recipe. Know the raw materials that are the source of homeopathic preparations Know the particularities of homeopathic medicines To know the techniques of preparation of mother tinctures and liquid and solid homeopathic LM dilutions. 	Classification of homeopathic products. Homeopathic prescription. Ways of administration. Dosage. Raw materials. Manufacturing technologies. Preparation of Homeopathic Dilatations. Dynamic dilutions. Preparing LMs	



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Objectives	Content units	
6. Know the homeopathic specialties, ensure stability and storage conditions.	Homeopathic specialties. Stability. Conservation. Storage.	
Theme (chapter) 2. Veterinary products te	chnology	
 I.Veterinary science. Define veterinary science as science. Know the basic directions of veterinary science. Define the role of the pharmacist in the preparation of veterinary products. 	1.Basic Veterinary Directions. 2. Pharmacist - role in the production of veterinary preparations	
 Veterinary products Know the characteristics of veterinary products. Define the classification of veterinary products. Define the stages of the technological process of preparation of veterinary products. To know the active and auxiliary substances used in the preparation of veterinary forms. Assess Compatibility of Components with Prescriptions with Veterinary Products. 	 Particularities of preparation of veterinary forms depending on their use. Active and auxiliary substances necessary for the preparation of veterinary products. 	
Theme (chapter) 3. Cosmetics products tech	nology	
 Cosmetology as a science. Know the social aspects of cosmetology. Define cosmetology as science. The role of the pharmacist in the field of cosmetic products preparation. 	 Beauty and society. The basic directions of cosmetology. Pharmaceutical factors and quality of cosmetic preparations. 	
 2. Organization of the cosmetic production process. 1. Know and adhere to GMP rules in cosmetic products. 2. Appreciate sanitary requirements for rooms, equipment and staff 	1. Compliance with all requirements for the preparation of cosmetic products	



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Objectives	Content units	
3. Cosmetics.		
1. Define the structure of the skin.	1. Skin types.	
2. To appreciate the compatibility of		
cosmetic lotions.	2. Classification of cosmetic lotions.	
3. Define the stages of the technological		
process of lotion preparation.	3. Ability to dilute ethyl alcohol.	
4. Solvents used in the preparation of		
lotions.	4. The accuracy of the alcohol and glycerin	
5. To integrate in the preparation process	concentration in the lotions.	
knowledge gained in the Technology of		
Medicines.		
6. Define the appreciation of lotions from a		
biopharmaceutical perspective.		
4 Cosmetic creams . Technology of	1. Determine creams as a cosmetic product.	
preparation.	2. The importance of creams in supplementing	
1. Know the comparative characteristic of	FNH (Natural Hydration Factor)	
ointments and creams.	3. The importance of surfactants in improving	
2. Know the classification of excipients	the penetrability and technological properties of	
used in the preparation of cosmetic creams.	the preparation.	



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VIII.PROFESSIONAL (PC) AND TRANSVERSAL (TC) COMPETENCES AND STUDY OUTCOMES

Professional competences (PC) The set of specific competencies in the pharmaceutical field stipulates the basic criteria of the graduate of the Faculty of Pharmacy, being grouped into professional (PC) and transversal (TC) competencies.

- **PC** 1: Knowledge of theoretical bases of disciplines included in the faculty curriculum, general principles in the development, analysis and registration of pharmaceutical and parapharmaceutical products; knowledge of the general principles of organization and functioning of pharmaceutical institutions with different legal forms of activity; knowledge of the legislative framework in the field of pharmacy; knowledge of the pharmacist's rights and obligations.
- **PC** 2: performing various practical exercises related to the preparation, analysis and standardization of synthetic and phytopreparate medicines; knowledge of the drug in terms of action, indications, contraindications, adverse effects, mode of administration and their interactions; the practical implementation of patient counseling and pharmaceutical assistance.
- PC 3: designing practical work in pharmaceutical system according to the diversity of professional roles; use and adaptation of theoretical knowledge in the field of pharmacy to practical work situations; making professional work efficient by introducing innovative pharmaceutical elements; applying the requirements of pharmaceutical legislation in practice; possessing the computer as a working tool in theoretical and practical pharmaceutical activity; establishing the correlation between components of pharmaceutical activity process and healthcare system of the population; continuously increase efficiency of pharmaceutical activity by introducing innovations and implementation of inventions in the field.
- PC 4: diagnosis of particularities and organizational culture of the institution in pharmaceutical system, where the specialist operates; designing and coordinating pharmaceutical activity in various institutions: state-owned or private-type pharmacies; hospital pharmacies; pharmaceutical storages; drug factories, laboratories for quality control and certification of medicines, etc.; active engagement of the specialist in process of accomplishing the mission of pharmaceutical institution; demonstrating the capacity to make decisions aimed at improving the pharmaceutical system.
- **PC** 5: Determining the criteria for assessing the efficacy of the pharmaceutical system and the personal activity according to the actual conditions and in the concrete social context; determining how to conduct pharmaceutical activity based on the results of the evaluations; identifying research issues in the field of pharmacy; knowing the methodology of scientific research in the practical work of a pharmacist or a head of the pharmaceutical unit.
 - PC 6: Adoption of messages in various socio-cultural environments, including through



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multilingual communication; use of the capacity to solve the problems of the situation in the pharmaceutical activity in collaboration with doctors; promoting principles of tolerance and compassion for patients; the use of information technology (and computer) in pharmaceutical activity;

✓ Transversal competences (TC)

- TC 1: Promoting logical reasoning, practical applicability, assessment and self-assessment in decision-making; compliance with pharmaceutical ethics and deontology rules in preparation, analysis, transport and delivery of medicinal products to the population and medical institutions.
- TC 2: Identification of training needs according to the evolution of the pharmaceutical system; determining the priorities in continuing professional training of pharmacist; appreciation of changes in the pharmaceutical system as a condition of its functionality.
- TC 3: Performing activities and exercising roles specific to team work. Promoting the spirit of initiative, dialogue, cooperation, positive attitude and respect for others, empathy, altruism and continuous improvement of our own activity.

✓ Study outcomes

- To determine the subject of study of the discipline;
- Define the concepts of homeopathic, veterinary and cosmetic technology and their assessment according to DAN requirements;
- Properly interpret technological operations at different stages of homeopathic, veterinary and cosmetic preparation in pharmacy and plant conditions;
- Identify the main physico-chemical and technological parameters of drug substances, auxiliary substances, adjuvants and packaging materials that determine the quality of the prepared drug.
- Describe the processes and devices used in the preparation of homeopathic, veterinary and cosmetic products;
- Know the physico-chemical properties of drug substances, auxiliary substances, adjuvants and packaging materials.

Note. Study outcomes (are deduced from the professional competencies and formative valences of the informational content of the discipline).



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IX. STUDENT'S SELF-TRAINING

No.	Expected product	Implementation strategies	Assessment criteria	Implementation terms
1.	Working with books and ICT	Working in the library and the chair. Exploring electronic sources on the subject.	Quality of information systematization through own activity.	During the semester
2.	Work with homeopathic, veterinary and cosmetic preparations	Analysis of the preparation stages of homeopathic, veterinary and cosmetic forms. Packaging and sizing of products.	 Workload. Solving the Situation Problem (as appropriate) 	During the semester
3.	Working with the tests	Working in the library of the chair and in the computer room	1. Additional literature is recommended - magazines from Moldova, Romania, Bulgaria etc.	During the semester



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X. METHODOLOGICAL SUGGESTIONS FOR TEACHING-LEARNING-ASSESSMENT

✓ Teaching and learning methods used

Optional Discipline The homeopathic, veterinary and cosmetic products technology is traditionally taught: course and practical work, individual work. The course is held by the course holders. In the practical work, student work is individualized, each student prepares the medicine as appropriate, assesses the quality of the products prepared according to the pharmacopoeial requirements, correctly interprets the technological operations at different stages of drug preparation, identifies the main physico-chemical parameters and medicinal products, auxiliary substances, adjuvants and packaging materials, which determines the quality of the prepared product, it is necessary to know the processes and apparatus used in the preparation of homeopathic, veterinary and cosmetic products, to know the physicochemical properties of the drug substances, the auxiliary substances, adjuvants and packaging materials.

Individual work includes virtual training with CDs and films for homeopathic, veterinary and cosmetic products preparation, notebooks where the stages of the technological flow of preparation are described in detail according to an established algorithm, and the deepening of the knowledge by studying the additional literature.

The chair has computers (PC Workstation PC1330 Navigator and PC Mini Nettop Seli 3Q Core and BENQ monitor). Computers are connected to the Internet via Wireless (Router Model WR941 ND).

Suggestions for individual activity

Individual work in the learning process includes the study of additional material for each subject from basic and additional bibliographic sources from the databases available through the communication networks and the chair.

Virtual training (CD information, video)

No.	The name of the CD, the movie	Pages, slides, minutess
	Movies - Homeopathic products technology	minutess
1	Water memory a question of molecular structure (English, Romanian subtitles)	8 minutes
2	Water memory discovering scientists (1 Romanian)	48 minutes
3	I found the memory of water (French, subtitles in Romanian)	40 minutes
4	The main energy meridians (Romanian)	15 minutes



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No.	The name of the CD, the movie	Pages, slides, minutess
5	Boiron manufacturing process (English)	10 minutes
6	Homeopathy - Rafael Noica (Romanian)	3 minutes
7	How are homeopathic remedies made (l. engleză)	2 minutes
8	How to make a Homeopathic remedies (l. engleză)	2 minutes
9	Remedy praparation -Helios Homeopathy (English)	3minutes
	TOTAL	2 hours 18 minutes

- *Methods of assessment* (including the method of final mark calculation)
- Current: Front and individual control via:

To determine the subject of study of the discipline;

Define the concepts of homeopathic, vetric and cosmetic products technology and their assessment according to DAN requirements;

To correctly interpret technological operations at different stages of preparation of homeopathic, veterinary and cosmetic drugs;

Identify the main physico-chemical and technological parameters of drug substances, auxiliary substances, adjuvants and packaging materials that determine the quality of the prepared preparation.

Describe the processes and devices used in the preparation of homeopathic, veterinary and cosmetic products.

Final: Colloquium

Method of mark rounding at different assessment stages

8		
National	ECTS	
Assessment	Equivalent	
System	Equivalent	
2	F	
4	FX	
5		
5,5	E	
6		
6,5	D	
7	D	
7,5	С С	
8		
8,5	В	
	Assessment System 2 4 5 5,5 6 6,5 7 7,5 8	



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8,51-8,00	9	
9,01-9,50	9,5	A
9,51-10,0	10	A

The average annual mark and the marks of all stages of final examination (computer assisted, test, oral) - are expressed in numbers according to the mark scale (according to the table), and the final mark obtained is expressed in number with two decimals, which is transferred to student's record-book.

Absence on examination without good reason is recorded as "absent" and is equivalent to 0 (zero). The student has the right to have two re-examinations.



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XI. RECOMMENDED LITERATURE:

A. Compulsory:

- 1. Dobrescu Dumitru. General homeopathic pharmacology. Bucharest, 2007, 267 p.
- 2. Bunghetzianu Gh. Chirila P. Manual of homeopathy. Ed. Bucharest, 1983, 302 p.
- 3. Corneliu Aurian Blageni. Homeopathy. Theory and practice. Bucharest, 1994, 570 p.
- 4. Ducot Emmanuel. Forward into homeopathy. Ed. Polirom, 1999.
- 5. George Vithoulkas. New Millenium Medicine Homeopathy. Ed. Pan Europe, Iași, 2002.
- 6. Samuel Hahnemann. Organon of Medicine. Ed. Tehnopress. 2012. 323 p.
- 7. Suciu G.H. Pharmaceutical forms for veterinary use. Cluj-Napoca, 1990, 261p.
- 8. Adriana Ciurba. Cosmetic Form. Tiromur Publishing House. Târgu-Mureş, 1998.
- 9. Brunno Massa. Pretty like 20 years old. Milano, 2007.
 - 10. Ernest W. Flick. Cosmetic and toiletry formulations. Second Edition.

B. Additional

- 1. Diug O., Diug E. Species Chelidonium majus L., a source of new pharmaceutical forms. Ed. Digital Hardware, Chisinau, 2010, p.133-143.
- 2. Kayne S.B. Homeopathie pharmacy: theory and practice. Elsevier Health Sciences (2ed).
- 3. Boiron C. L'Avenir de l'homeopathie, Paris, Albin Michel, 2007, 132 p.
- 4.Blajeni C.A. Homeopathy. Theory and Practice, Bucharest, Litera Publishing House, 1985, 394 p.
- 5. Hahnemann S. Traite of Metiere Medical, Paris, Edition Similia, 1989.
- 6.Grigorescu E., SILVA F. From Ednomedicine to Phytotherapy, Iasi, Spiru Haret Publishing House,

1997.

- 7. Watson Ian. A Guide to the Methodologies of Homeopathy, Cutting Edge Publications, 2004.
- 8. Fisher, P. The Memory of Water: a Scientific Heresy? ", Homeopathy 2007, V. 96, no. 3, p. 141-142.
- 9. Popovici Adriana. Dermofarmacy and Cosmetology, Medical Publishing House, Bucharest, 1982.
- 10. Vasilica- Mozăceni A.- Indigenous Plants in the Treatment of Disease leather and cosmetics, Cereș Publishing House, Bucharest, 1992.
- 11. Stephanie Tourles. Natural cosmetic recipes. Publisher: House of Guides, 2007.