

National Pirogov Memorial Medical University, Vinnytsia

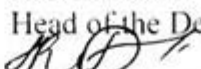
"APPROVE"

Higher Educational Institution  
Vice-Rector for Scientific and  
Academic Work and International Links

Inna ANDRUSHKO

"30" August 2024 year

«AGREED»

Head of the Department of Pharmacy  
 Olena KRYVOVIAZ

"30" August 2024 year

**SYLLABUS**  
of academic discipline

**"TECHNOLOGY OF MEDICINAL COSMETICS"**

Specialty	226 Pharmacy, Industrial Pharmacy
Specialization	226.01 Pharmacy
Educational level	the second (master's) level
Educational programme	<i>EPP «Pharmacy», 2023</i>
Academic year	2024-2025
Department	Pharmacy
Lecturer (if lectures are given)	Ass. Prof. of HEI Tetiana VOITENKO
Contact information	<i>pharmacy@vnmnu.edu.ua</i>
Syllabus compiler	Ass. Prof. of HEI Tetiana VOITENKO

### 1. Status and structure of the discipline

Discipline status	Compulsory
Discipline code in EPP/ discipline place in EPP	SC 44 / discipline of general training or professional training
Course / semester	5rd year (X semester)
The amount of discipline ( the total number of hours / number of credits ECTS)	60 hours / 2 credits ECTS
Number of content modules	2 modules
The structure of the discipline	Lectures - _10_ hours Practical classes __30_ hours Independent work _20__ hours
Language of study	English
Form of study	Full - time, part-time (or distance according to the order)

### 2. Description of the discipline

#### Short annotation of the course, relevance.

The program of the discipline "Technology of medicinal cosmetics" is intended for applicants for higher education and provides theoretical knowledge and forms practical skills on the main stages of the formation and development of pharmaceutical technology of medicinal cosmetics in Ukraine and abroad, general requirements for the manufacture of medicinal products of various cosmetic forms at industrial pharmaceutical enterprises.

**Prerequisite.** The discipline is based on the study of general and inorganic chemistry, organic chemistry, human anatomy and physiology, pharmacology, and pharmaceutical chemistry. Drug Technology, Pathological Physiology, Pharmacognosy, Clinical Pharmacy and Pharmaceutical Care, Pharmaceutical and Medical Merchandising, Pharmaceutical Biotechnology, Drug Standardization.

#### The purpose of the course and its significance for professional activities

The purpose of teaching the discipline "Technology of Medicinal Cosmetics" is to study modern requirements for the production of cosmetics, including a good manufacturing practice (GMP), improving technology, mastering by applicants of higher education the theoretical foundations and practical skills and abilities of manufacturing medicines at pharmaceutical enterprises, taking into account the requirements of good manufacturing practice; the rules for the preparation of technological documentation for the manufacture of medicines, the rules for their storage and packaging; master the knowledge of characteristics, classification and range of finished dosage forms; the formation of applicants for higher education of theoretical knowledge and professional skills by studying the influence of excipients on the quality of drugs, which makes it possible to more fully realize the scientific and creative potential of future specialists. Mastering the theory and practice of making dosage forms is necessary for a specialist to perform the duties of a specialist, which is provided for by legal procedural legislation and the corresponding order of the Ministry of Health of Ukraine

**Postrequisites** – The main provisions of the academic discipline should be applied in the study of related disciplines during the fifth year of study, they are the basis for preparing for the licensing exam, preparing for training in higher educational institutions on programs for the cycle of basic disciplines of professionally oriented training of specialists in the specialty "Pharmacy, Industrial Pharmacy" of the second level of higher education.

### 3. Learning outcomes.

Integrative final program learning outcomes, the formation of which is facilitated by the initial theoretic bases of pharmacy compounding:

- Identification of future professional activity as socially significant for human health.

- Implementation of professional activity based on general knowledge of the main stages of formation and development of pharmaceutical science and practice in Ukraine and the world, practical approaches to the organization of medicines and public health facilities, regulations of Ukraine and recommendations of good pharmaceutical practices.
- Rationale for decision making in standard professional situations.
- Formation of basic knowledge and acquisition of practical skills for further study of professional disciplines.

*General competencies (GC):*

GC01: Commitment to environmental protection.

GC02. Ability to abstract thinking, analysis and synthesis.

GC04. Ability to adapt and act in a new situation. Ability to take initiative.

GC05: Ability to communicate in the state language both orally and in writing, ability to communicate in a foreign language (mainly English) at a level that ensures effective professional activity.

GC 08: Ability to evaluate and ensure the quality of work performed.

GC 09. Ability to conduct research at the appropriate level.

GC10: Ability to exercise their rights and responsibilities as a member of society, to understand the values of civil (free democratic) society and the need for its sustainable development, the rule of law, human and civil rights and freedoms in Ukraine.

GC11. Ability to preserve and enhance the moral, cultural, scientific values and achievements of society based on an understanding of the history and patterns of development of the subject area, its place in the general system of knowledge about nature and society and the development of society, technology and technology, to use various types and forms of physical activity for active recreation and healthy lifestyle.

*Special (professional):*

PC01.Ability to store, interpret and apply data necessary for professional activities, research and implementation of innovative projects in the field of pharmacy.

PC 02: Ability to integrate knowledge and solve complex pharmacy problems in broad or multidisciplinary contexts.

PC 03: Ability to solve pharmacy problems in new or unfamiliar environments with incomplete or limited information, taking into account aspects of social and aesthetic responsibility.

PC04. Ability to use in professional activities knowledge of regulatory and legal acts of Ukraine and recommendations of good pharmaceutical practices.

PC 05. Ability to demonstrate and apply in practice communication skills, fundamental principles of pharmaceutical ethics and deontology. These are based on moral obligations and values, ethical standards of professional behaviour and responsibility in accordance with the Code of Ethics for Pharmacists of Ukraine and WHO guidelines.

PC 06. Ability to clearly and unambiguously communicate own knowledge, conclusions and arguments in the field of pharmacy to specialists and non-specialists, including students.

PC 07. Ability to conduct health education among the population in order to prevent the spread of dangerous diseases, prevent dangerous infectious, viral and parasitic diseases, as well as to promote timely detection and support of adherence to treatment of these diseases in accordance with their biomedical characteristics and microbiological characteristics.

PC11. Ability to ensure the proper storage of medicines and other pharmacy products in accordance with their physical and chemical properties and the rules of Good Storage Practice (GSP) in healthcare facilities.

PC16.Ability to develop and implement a quality management system for pharmaceutical enterprises in accordance with the requirements of current Standards, to conduct quality audits and risk management for the quality of pharmaceutical products.

PC 19. Ability to organise and participate in the production of medicines in pharmaceutical enterprises, including the selection and justification of the technological process, equipment in accordance with the requirements of Good Manufacturing Practice (GMP), and the development and execution of the necessary documentation.

*Program learning outcomes for the discipline:*

PLO 01. Apply specialised knowledge and skills in general and specialised disciplines in professional activities.

PLO 03: Evaluate and ensure the quality and effectiveness of activities in the field of pharmacy.

PLO 04: To comply with the standards of sanitary and hygienic regime and safety requirements in the performance of professional activities.

PLO 05: Plan and implement professional activities on the basis of regulatory legal acts of Ukraine and recommendations of good pharmaceutical practices.

PLO 06: To carry out professional communication in the state language, use oral communication skills in a foreign language, analysing professional texts and translating foreign language information sources.

PLO 07. Demonstrate the ability to independently search, analyse and synthesise information from various sources, including professional literature, patents, data bases;

evaluate it, in particular, using statistical analysis, and apply these results to solve typical and complex specialised problems

professional activities, including the development and production of medicines.

PLO 08. Develop and make effective decisions on solving complex/complex problems of pharmacy personally and based on the results of joint discussion; formulate goals of own and team activities, taking into account social and industrial interests, general strategy and existing constraints, determine the best ways to achieve goals.

PLO 09. Develop and implement innovative projects in the field of pharmacy, as well as related interdisciplinary projects, taking into account technical, social, economic, ethical, legal and environmental aspects.

PLO 10. Conduct sanitary and educational work in professional activities in the event of outbreaks of infectious, viral and parasitic diseases.

PLO 13. Predict and determine the impact of environmental factors on the quality and consumer characteristics of medicines of natural and synthetic origin and other pharmacy products, organise their storage in accordance with their physical and chemical properties and the rules of Good Storage Practice (GSP).

PLO 23. Carry out pharmaceutical development, substantiate the technology and organise the production of medicines at pharmaceutical enterprises and draw up technological documentation for the production of medicines at pharmaceutical enterprises.

PLO 26. Ensure and carry out quality control of medicinal products of natural and synthetic origin and document its results; to issue quality certificates and certificates of analysis in accordance with the requirements of the current edition of the State Pharmacopoeia of Ukraine, quality control methods (QCM), technological instructions, etc. to take measures to prevent the distribution of low-quality, counterfeit and unregistered medicinal products medicinal products.

#### **4. Content and logistic of the discipline**

Module 1 "Technology of medicinal cosmetic products"	X semester 60 hours / 2,0 credits	Lectures № 10 Practical classes № 30 Topics for self- study №20
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The course includes 14 topics, which are divided into 2 thematic modules.

#### **Module 1 " Technology of medicinal cosmetic products "**

**Content module 1 «Technology and application of medicinal cosmetic products. Cosmetic creams, masks, scrubs.»**

Topic 1. Basic concepts of cosmetics. Terminology and classification of cosmetics

Topic 2. Cosmetic aspects of the morphology and physiology of the skin. Cosmetic effect.

Topic 3. Auxiliary substances in the composition of cosmetics. Characteristic by purpose, permeability, mechanism of action.

Topic 4. Cosmetic creams. Principles of stabilization. Active and auxiliary substances in the composition of cosmetic creams

Topic 5. Cosmetic masks and scrubs. Technology of preparation. Evaluation of the quality of scrubs and cosmetic masks.

Topic 6. Final lesson of content module 1: Technology and application of medicinal cosmetic products. Cosmetic creams, masks, scrubs.

**Content module 2. Hair care cosmetics. Decorative cosmetics. Perfumes and cosmetics, oral care products.**

Topic 7. Cosmetic preparations for washing purposes. Cosmetic shampoos. Cosmetic Soaps. Shower gels. Bath foams.

Topic 8. Cosmetics for hair care. Balsams, conditioners, hair conditioners. Preparations for changing the color, shape, styling and fixation of hair.

Topic 9. Cosmetic products for decorative purpose.

Topic 10. Aromatic cosmetics. Features of the technology of preparation of aromatic cosmetics and quality control.

Topic 11. General characteristics and classification of perfumes.

Topic 12. Technology and quality control of perfume compositions.

Topic 13. Cosmetic products for oral care. Toothpastes. Dental elixirs. General principles of technology and quality control.

Topic 14. Final lesson of content module 2. Hair care cosmetics. Decorative cosmetics. Perfumes and cosmetics, oral care products.

*The main objectives*

**The main tasks of studying the academic discipline are:**

- Providing students with theoretical knowledge for mastering (acquisition) practical skills on the basic principles of the development and analysis of the composition of cosmetic preparations of a given direction of action, the theoretical foundations of the manufacture of cosmetics, the preparation and implementation of rational technology for the manufacture of cosmetics in accordance with the requirements of regulatory and technical documentation, implementation in stages of control, standardization, studying the influence of storage conditions and the type of packaging on the stability of perfumery and cosmetic products, studying the prospects for the development of the production of cosmetics
  - Acquaintance with the organization of the production of medicines in the conditions of pharmaceutical enterprises, in accordance with the requirements of Good Manufacturing Practice (GMP);
  - Using in professional activities of the normative - legal and legislative acts of Ukraine, the requirements of good manufacturing practice (GMP) for the manufacture of medicines in an industrial environment;
  - Formation of the knowledge of applicants for higher education: the theoretical foundations of the technology of manufacturing of various types of cosmetic products, implementation in stages of control, ways of improving cosmetics in industrial conditions;
  - Study of the influence of storage conditions and type of packaging on the stability of cosmetics;
- Study of industrial equipment, including new one devices and automatic lines, modern requirements for the production of cosmetics, including the requirements of the World Health Organization (WHO) for the purity of raw materials, production premises and personnel.

*Individual work* includes the study of scientific literature, preparation of reviews on the topics provided for presentation at the meetings of the student scientific circle, the implementation of scientific and practical researches, participation in specialized competitions, scientific and practical conferences and organization of students' research works.

Thematic plans of lectures, calendar plans of practical classes, thematic plan of independent extracurricular work, volume and directions of individual work are published on the website of the department.

The route for obtaining materials: Department of Pharmacy / for students / Full-time education / Pharmacy, industrial pharmacy / 4 course / Educational materials / or through the link <https://www.vnmu.edu.ua/кафедра-фармації#..> Access to the materials is carried out through the student's corporate account [s000XXX@vnmu.edu.ua](mailto:s000XXX@vnmu.edu.ua).

## 5. Forms and methods of monitoring academic performance

Current control in practical studies	Methods: <i>oral or written survey, testing, electronic survey, solving situational problems, conducting laboratory studies, interpreting them and evaluating their results (drawing up a protocol in a workbook)</i>
Control of mastering the thematic section of the discipline at intermediate control lessons	Methods: <i>oral or written survey, electronic testing, situational problem solving, control of practical skills</i>
Final semester control (credit) at the end of the X semester	According to the Regulation of the Academic process in VNMU named after M.I. Pirogov (link <a href="https://www.vnmue.edu.ua/General">https://www.vnmue.edu.ua/General</a> information)
Learning success diagnostic tools	Theoretical questions, tests, clinically-oriented situational tasks, practical tasks, practical skills demonstration

## 6. Assessment criteria

Knowledge assessment is carried out in accordance with the Regulations of the Academic process in VNMU named after M.I. Pirogov (link <https://www.vnmue.edu.ua/General> information)

Continuous assessment	On a four point system of traditional assessments: 5 «excellent», 4 «good», 3 «satisfactory», 2 «unsatisfactory»
Final control of the discipline	<i>Sum of points for pre-examination testing (12-20 points) and oral questioning (38-60 points) (for disciplines included in Step 1,2)</i> Exam grade: 71-80 points - "excellent" 61-70 points - "good" 50-60 points - "satisfactory" Less than 50 points - "unsatisfactory" / did not pass
Discipline assessments:	Current academic assessment - from 72 to 120 points (conversion of the average traditional assessment of practical class on a 120-point scale): 60% of the grade for the discipline Final control - from 50 to 80 points: 40% of the grade for the discipline Individual work - from 1 to 12 points From 122 to 200 points in total.

### Discipline Score Scale: National and ECTS

The sum of grades for all types of educational activities	Score ECTS	Score on a national scale	
		For exam, course project (work), practice	for credit test
180-200	A	excellent	credited
170-179,99	B	good	
160-169,99	C		
141-159,99	D	satisfactory	
122-140,99	E	satisfactory	
0-121,99	FX	unsatisfactory with the possibility of reassembly	is not credited with the possibility of reassembling
	F	unsatisfactory with a mandatory reexamination of discipline	is not credited with mandatory reexamination of discipline

#### 7. Policy of discipline / course

The student has the right to receive high-quality educational services, access to contemporary scientific and educational information, qualified advisory assistance during the study of discipline and mastering practical skills. The policy of the department during the providing of educational services is a student-centered, based on normative documents of the Ministry of Education and the Ministry of Health of Ukraine, the Statute of the University and the Procedure for the Providing of Educational Services regulated by the main principles of the organization of the educational process in VNMU named after M.I. Pirogov and the principles of academic integrity ( link <https://www.vnmue.edu.ua/General> information).

#### **Adherence to the rules of VNMU, safety techniques in practical classes.**

Safety instruction is given at the first practical lesson by the teacher. The briefing is registered in the Safety Briefing Journal. Applicant for higher education who has not been instructed is not allowed to practical class. In case of announcement of the "Air Alert" signal or other warning signals, the teacher stops classes, informs higher education students about the need to go to a civil defence shelter and stay there until the signal is cancelled. The teacher informs the students about further actions after the signal is cancelled: to continue the class or to recommend to revise the material on their own with a subsequent survey at the next lesson (Order No. 505 of 30.08.2023).

**Requirements for preparation for practical classes.** Applicant for higher education should be present at the practical lesson on time, theoretically prepared according to the topic. Applicant for higher education should come to class on time, without lateness. Applicant for higher education who is late is not allowed to study and must rework it in the prescribed manner.

In practical classes, the applicant for higher education must be dressed in a work uniform. Applicants for higher education who do not have a work uniform are not allowed to study.

The applicant for higher education must follow the rules of safety in practical classes and during the stay in the department.

When discussing theoretical issues, students should demonstrate tolerance, courtesy and respect for their colleagues and the teacher; when performing practical tasks, the workplace should be kept in order and cleaned after the practical work.

**Usage of mobile phones and other electronic devices.** The use of mobile phones and other electronic devices in the classroom is allowed only on the instructions of the teacher.

Academic integrity. When studying the discipline, the student must be guided by the Code of Academic Integrity and Corporate Ethics of VNMU named after M.I. Pirogov (link : <https://www.vnmue.edu.ua/General> information)/ Code of Academic Integrity). In case of violation of the norms of academic integrity during the current and final controls student receives a grade of "2" and must work it out to his teacher in the prescribed manner within two weeks after receiving an unsatisfactory assessment).



**Academic integrity.** During the study of the discipline the Applicants for higher education must be guided by the Code of Academic Integrity of VNMU named after M.I. Pirogov. In case of violation of the norms of academic integrity during the current and final controls, the Applicants for higher education receives a grade of "2" and must work it in the prescribed manner for two weeks.

**Missed classes.** Missed classes are working out in the manner prescribed by Regulations of the Academic process in VNMU named after M.I. Pirogov (link <https://www.vnmue.edu.ua/General> information) at the time of work out schedule (published on the website of the department <https://www.vnmue.edu.ua/> department of pharmacy #) to the teacher on duty.

**The procedure for admission** to the discipline final control is given in the Regulations of the Academic process in VNMU named after M.I. Pirogov (link <https://www.vnmue.edu.ua/General> information). To the final control allowed students who do not have missed practical classes and lectures and received an average traditional grade of at least "3".

**Additional points.** Individual points in the discipline (from 1 to 12) that student can receive for individual work, the amount of which is published on the website of the department in the educational methodical materials of the discipline, the number of points is determined by the results of IRS according to Regulation of the Academic process in VNMU named after M.I. Pirogov (link <https://www.vnmue.edu.ua/General> information).

**Conflict resolution.** In case of misunderstandings and complaints to the teacher because of the quality of educational services, knowledge assessment and other conflict situations, students should submit his / her claims to the teacher. If the issue is not resolved, the student has the right to apply to the head of the department according to Complaints Consideration Procedure in VNMU named after M.I. Pirogov (link <https://www.vnmue.edu.ua/General> information)

**Politics in terms** of remote learning. Distance learning regulated by the Regulations of the elements of remote learning in VNMU named after Pirogov M.I. (<https://www.vnmue.edu.ua/General> information). The main training platforms for studying are Microsoft Team and Google Meets. Practical classes and lectures, exercises and consultations during distance learning is published on the website of the department (<https://www.vnmue.edu.ua/> Department of of pharmacy / to Students or <https://www.vnmue.edu.ua/Department of Microbiology / News>).

**Feedback from the teacher** is provided through the distance learning platform (Microsoft Teams), messengers or e-mail (at the teacher's discretion) during working hours.

Higher education students have the right to receive quality educational services, access to up-to-date scientific and educational information, qualified advisory assistance in the study of the discipline and mastering practical skills. The department's policy in providing educational services is student-centred, based on the regulations of the Ministry of Education and the Ministry of Health of Ukraine, the university's charter and the procedure for providing educational services, regulated by the main provisions of the educational process at the Pirogov National Medical University and the principles of academic integrity.

## **8. Educational resources**

The educational and methodological support of the discipline is published on the website of the department (<https://www.vnmue.edu.ua/> department \_\_\_\_pharmacy\_\_\_\_/ Student). Consultations are held twice a week according to the consultation schedule.

**9. The schedule and distribution of groups by teachers** is published on the website of the department (<https://www.vnmue.edu.ua/> department \_\_\_\_pharmacy\_\_\_\_/ Student).

**10. Questions for intermediate and final controls of the discipline** are published on the website of the department (<https://www.vnmue.edu.ua/> department \_\_\_\_pharmacy\_\_\_\_/ Student).



## Recommended literature

### Basic literature

1. Handbook of Cosmetic Science and Technology /by Frank Dreher, Elsa Jungman, Kazutami Sakamoto, Howard I. Maibach. – CRC Press, 2022 – 450 p.
2. Leslie Baumann, MD Cosmeceuticals and Cosmetic Ingredients - McGraw Hill / Medical: 1st edition, 2014 - 368 p.
3. Textbook of Cosmetics Formulation / by Dr. Shikha Baghel Chauhan, Dr. Indu Singh - Independently published, 2023 - 408 p
4. Cosmetic Science and Technology: Theoretical Principles and Applications 1st Edition / by Kazutami Sakamoto, Robert Y. Lochhead, Howard I. Maibach, Yuji Yamashita - Elsevier; 1st edition 2017 - 854 p.
5. Gabriella Baki Introduction to Cosmetic Formulation and Technology, 2nd Edition, 2022 - 832 p.
6. Tharwat F. Tadros Pharmaceutical, Cosmetic and Personal Care Formulations - De Gruyter, 2018 - 410 p.
7. B.M. Mitiial, R.N. Saha A Handbook Of COSMETICS Vallabh Prakashan, 2006 240p.

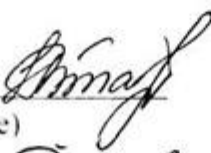
### Additional literature

1. Dermatological and transdermal formulations / Edited by Kenneth A.Walters. New York-London. – 2007. – 565 p.
2. Dermatologic, cosmeceutic and cosmetic development / Edit. Y.Walters. – 2008. – 644 p.
3. Godin B. Transdermal skin delivery: Predictions for humans from in vivo, ex vivo and animal models //
4. B.Godin, E.Touitou /Advanced Drug Delivery Reviews 59, -2007, - P. 1152–1161. Fink E. Przewodnik po substancjach czynnych i pomocniczych. - Wrocław. 2007, - 249s.
5. Consumption and exposure to finished cosmetic products: A systematic review / A.S. Fichoux, M.P. Gomez-Berrada, A.C. Roudot, P.J. Ferret // Food Chem Toxicol. – 2019. –Vol. 124, P. 280-299. doi:10.1016/j.fct.2018.11.060.
6. Continuing animal tests on cosmetic ingredients for REACH in the EU. / J. Knight, C. Rovida, R. Kreiling, et al. // ALTEX. – 2021. - Vol. 38(4). – P. 653-668. doi: 10.14573/altex.2104221.
7. COSMOS next generation - A public knowledge base leveraging chemical and biological data to support the regulatory assessment of chemicals / C. Yang, M.T. Cronin, K.B. Arvidson, et al. // Comput Toxicol. – 2021. – Vol. 19, P. 100 -175. doi: 10.1016/j.comtox.2021.100175.
8. Experiments in the EpiDerm 3D skin in vitro model and minipigs in vivo indicate comparatively lower in vivo skin sensitivity of topically applied aneugenic compounds / M. Schuler, L. Tomlinson, M. Homiski et al. // Toxicological Sciences. 2021. – Vol. 180, Iss. 1. – P. 103–121. <https://doi.org/10.1093/toxsci/kfaa189>
9. Skin safety and health prevention: an overview of chemicals in cosmetic products / A. Panico, F. Serio, F. Bagordo et al. // J. Prev. Med. Hyg. – 2019. - Vol. 60 (1). P. E50-E57. doi: 10.15167/2421-4248/jpmh2019.60.1.1080.

The syllabus of the discipline "Technology of medicinal cosmetics" was discussed and approved at the meeting of the department pharmacy (record № 1, dated "30" 08 2024)

Responsible for the academic  
discipline

(signature)



Ass. prof. of HEI Tetiana VOITENKO

Head of the department

(signature)



Prof. of HEI Olena KRYVOVIAZ