NATIONAL PIROGOV MEMORIAL MEDICAL UNIVERSITY, VINNYTSIA

COURSE SYLLABUS

For the training of master's students

TECHNOLOGY OF MEDICINAL COSMETICS

Specialty	226 Pharmacy, Industrial Pharmacy
Specialization	226.01 Pharmacy
Educational Programme	*EPP «Pharmacy», 2023*
Higher Education Level	the second (master`s) level
Academic year	2026-2027
Status of the Discipline	Mandatory
Language of Instruction	Ukrainian / English
Total Workload	2,0 of ECTS credits
Year of Study / Semester	V/10 (full-time) V/9 (part-time)
Developer	Assoc. Prof., PhD Tetiana VOITENKO
Instructor	Assoc. Prof., PhD Tetiana VOITENKO
Venue and Contact Details	Department of Pharmacy, Vinnytsia, 56 Pirogov Street, tel. 55 39 52 *pharmacy@vnmu.edu.ua*

1. DESCRIPTION OF THE ACADEMIC DISCIPLINE

ABSTRACT

Brief course overview and 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.

PURPOSE AND OBJECTIVES

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

Competencies and learning outcomes fostered by the course

Integral competence (IC): The ability to solve problems and to analyse and resolve practical issues of a research and/or innovative nature in the field of pharmacy.

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/subject-specific) competencies (PC):

- 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.

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.

2. LEARNING OUTCOMES

Integrative final programme learning outcomes fostered by the course:

- 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.

3. FORMS OF ORGANISATION OF THE EDUCATIONAL PROCESS AND THEIR SCOPE

Type of Learning Activity	**Hours**	
	Full-time	**Part-time**
Lectures:	10	6
Practical Classes:	30	6
Independent Study:	20	48
Total	60	60

4. THEMATIC PLAN

Module 1 " Technology of medicinal cosmetic products "

Content module 1 «Technology and application of medicinal cosmetic products»

Topic 1. Basic concepts of cosmetics. Terminology and classification of cosmetics.
Topic 2. Cosmetic aspects of skin morphology and physiology. Cosmetic effect
Topic 3. Excipients in cosmetics. Characteristics by purpose, permeability level, mechanism of action.
Topic 4. Cosmetic creams. Principles of stabilisation. Active and auxiliary substances in cosmetic creams.
Topic 5. Cosmetic masks and scrubs. Preparation technology. Quality control.
Topic 6. Cosmetic lotions and tonics: technology, quality control.
Topic 7. Cosmetic foam products. Shower gels. Bath foams. Cosmetic shampoos.
Topic 8. Cosmetic hair care products. Balms, conditioners, rinses.
Topic 9. Cosmetic soaps: technology, quality control.
Topic 10. Products for changing the colour, shape, styling and fixing of hair.
Topic 11. Cosmetic products for decorative purposes
Topic 12. Technology of deodorising cosmetic products.
Topic 13. Cosmetic products for oral care. Toothpastes. Dental elixirs. General principles of technology and quality control.
Topic 14. General characteristics and classification of perfumery products. Technology. Quality control.

5. FORMS AND METHODS OF ASSESSMENT OF LEARNING OUTCOMES

Ongoing Assessment during Practical Classes	Methods: oral and/or written assessment and testing, computer-based assessment and testing, completion of situational tasks.
*Final Assessment of the Academic Discipline – **Graded Pass**	It is conducted during the final practical class and is assessed in accordance with the Regulations on the Organisation of the Educational Process at National Pirogov Memorial Medical University, Vinnytsia:General Information / Key Documents https://www.vnmu.edu.ua/downloads/other/polog_organiz_ocv_proc(2026).pdf)
Assessment Tools for Learning Achievement	Theoretical questions, tests, clinically oriented situational tasks, practical assignments, demonstration of practical skills.

6. ASSESSMENT CRITERIA

Assessment of students' knowledge is carried out in accordance with the current Regulations on the Organisation of the Educational Process at National Pirogov Memorial Medical University, Vinnytsia**.**

(https://www.vnmu.edu.ua/downloads/other/polog_organiz_ocv_proc(2026).pdf)

Type of Assessment	Assessment Criteria / Scale
Ongoing Assessment	According to the traditional grading scale: 5 – "Excellent", 4 – "Good", 3 – "Satisfactory", 2 – "Unsatisfactory"

Interim Assessments	According to the traditional grading scale
Assessment of Practical Skills	According to the traditional grading scale
Final Grade of the Academic Discipline	Grade for differential credit: 71–80 points – "Excellent"; 61–70 points – "Good"; 50–60 points – "Satisfactory"; fewer than 50 points – "Unsatisfactory" / Failed.
Overall Assessment for the Academic Discipline	Ongoing academic performance – 72–120 points (conversion of the average traditional grade for practical classes to the 120-point scale): 60% of the final grade for the academic discipline. Final Assessment – 50–80 points: 40% of the final grade for the academic discipline. Individual Assignments– 1–12 points. Total: 122–200 points.

GRADING SCALE: NATIONAL AND ECTS

Total Score for All Learning Activities	ECTS Grade	National Grade: Examination, Course Project (Paper), Practical Training	National Grade: Pass
180–200	**A**	Excellent	Passed
170–179.99	**B**	Good	Passed
160–169.99	**C**	Good	Passed
141–159.99	**D**	Satisfactory	Passed
122–140.99	**E**	Satisfactory	Passed
60–121.99	**FX**	Unsatisfactory, with the possibility of retaking	Failed, with the possibility of retaking
0–59.99	**F**	Unsatisfactory, with mandatory repetition of the discipline	Failed, with mandatory repetition of the discipline

Criteria for Assessing Students' Knowledge

Assessment of Oral/Written Responses during Ongoing Assessment

The grade "Excellent" is awarded when a student demonstrates comprehensive knowledge of the topic, illustrating responses with a variety of relevant examples; provides complete, accurate, and clear answers without prompting or leading questions; presents the material without errors or inaccuracies; confidently solves problems and completes practical tasks of varying levels of complexity; and independently generates innovative ideas.

The grade "Good" is awarded when a student demonstrates good knowledge and understanding of the topic and provides correct, coherent, and well-structured answers, although they may not be fully comprehensive. The student answers additional questions correctly and without significant errors; successfully solves problems and completes practical tasks, experiencing difficulties only with the most complex assignments.

The grade "Satisfactory" is awarded when a student demonstrates knowledge of the overall content of the topic and a satisfactory level of understanding. With the help of guiding questions, the student is able to solve modified (simplified) problems; solves problems and completes practical tasks, although experiencing difficulties even with relatively simple assignments; is unable to

formulate a coherent and systematic response independently but provides correct answers to direct questions.

The grade "Unsatisfactory" is awarded when a student's knowledge and skills do not meet the requirements for the grade "Satisfactory".

The assessment criteria for all other types of students' academic work are based on the requirements of the Regulations on the Organisation of the Educational Process at National Pirogov Memorial Medical University, Vinnytsya,

(https://www.vnmu.edu.ua/downloads/other/polog_organiz_ocv_proc(2026).pdf) and are specified in the programme of the academic discipline.

Assessment of Students' Independent Study

Students' independent study undertaken as part of a topic alongside contact hours is assessed as part of the ongoing assessment of that topic during the relevant practical class.

The maximum number of points a student may receive upon completion of the discipline is 200 points. The minimum passing score is 122 points.

7. METHODOLOGICAL SUPPORT

Teaching and learning materials (lecture notes or extended lecture outlines), thematic plans for lectures, practical classes and independent study, assignments for ongoing assessment, methodological guidelines, and teaching manuals.

8. ACADEMIC DISCIPLINE POLICIES

The completion of learning activities and all academic work within the discipline must comply with the requirements of the Regulations on the Organisation of the Educational Process at National Pirogov Memorial Medical University, Vinnytsya**;** (https://www.vnmu.edu.ua/downloads/other/polog_organiz_ocv_proc(2026).pdf), the Regulations on the Organisation of the Educational Process for Higher Education Students Pursuing the Degree of Doctor of Philosophy at National Pirogov Memorial Medical University, Vinnytsya (https://www.vnmu.edu.ua/downloads/other/pologPhD_org.pdf),; the Law of Ukraine "On Education" (Article 42**)**; the Law of Ukraine "On Academic Integrity**"**; and the Code of Academic Integrity of National Pirogov Memorial Medical University, Vinnytsya (https://www.vnmu.edu.ua/downloads/other/kodex_akad_dobr_edit%202026.pdf)

Students are entitled to high-quality educational services and a safe learning environment under martial law, emergency situations and states of emergency; access to up-to-date scientific and educational information; and qualified academic guidance and support in studying the discipline and acquiring practical skills.

The Department's policy on the provision of educational services is student-centred and is based on the regulatory documents of the Ministry of Education and Science of Ukraine and the Ministry of Health of Ukraine, the University Statute, the procedures governing the provision of educational services, including in emergency situations, as stipulated by the principal regulations and administrative directives governing the organisation of the educational process at National Pirogov Memorial Medical University, Vinnytsya, as well as on the principles of academic integrity.

Academic Integrity. When studying the discipline and completing all types of learning assignments and/or research activities, students must comply with the Law of Ukraine "On Education" (Article 42)**,** th**e** Law of Ukraine "On Academic Integrity"**,** and the Code of Academic Integrity of National Pirogov Memorial Medical University, Vinnytsya (University website → General Information → Key Documents → Code of Academic Integrity). In the event of a violation of academic integrity principles, appropriate measures shall be taken in accordance with the applicable regulatory documents.

Compliance with VNMU Internal Regulations and Safety Requirements during Practical Classes. At the first practical class, the instructor provides a safety briefing on appropriate conduct on the Department premises, informs students of the location of the shelter and the evacuation route

to the shelter in accordance with the approved evacuation plan, explains the rules of conduct while proceeding to and remaining in the shelter, and provides instructions on all actions stipulated by the Emergency Response Plan (pursuant to Order No. 505 dated 30 August 2023). In the event of an air raid alert or any other emergency warning signal, the instructor suspends the class. The instructor and students proceed together to the shelter and remain there until the warning signal is cancelled. Once the alert has been lifted, the instructor and students either resume the class in the Department's classrooms or students independently complete the remaining learning material, which is subsequently assessed at the next class.

Requirements for Preparation for Practical Classes

Students are required to participate actively in the educational process: attend classes and come adequately prepared; complete the test tasks related to the current topic in their workbooks and fill in the required diagrams and tables; actively participate in discussions of the class topic; complete all assignments specified in the programme; search for additional information relevant to the topic and present it to their peers.

Students are expected to arrive at classes on time. Late arrival is not permitted in accordance with the Internal Regulations for Students of VNMU**.** A student who arrives more than 10 minutes late is not admitted to the class and is required to make up the missed class in accordance with the established procedure.

For specialties within Field of Study I "Healthcare and Social Security", students are required to wear a medical coat during practical classes. Students who fail to comply with this requirement are not admitted to the class.

Students are expected to be polite, courteous, and respectful in their interactions with teaching staff, other University employees, fellow students, and other persons studying at VNMU. Students must maintain a quiet and orderly environment and demonstrate appropriate conduct on the Department premises.

In its activities, the Department adheres to the principles of mutual respect and tolerance. Students are expected to uphold the same principles.

Students must comply with safety regulations while on the Department premises.

When working in teaching and research laboratories, students must comply with the applicable safety regulations (published on the website of the Department of Pharmacy). When completing practical assignments, students must keep their workstations clean and orderly and leave them tidy upon completion of the practical work.

While at clinical training sites, students are required to comply with the established therapeutic and protective regime and sanitary and hygiene requirements**.** Where quarantine restrictions are introduced at a healthcare institution, strict compliance with all applicable requirements is mandatory.

When entering inpatient departments, students must wear a medical coat, cap, and change of footwear**.** Students must also have a medical mask, gloves, and hand sanitiser with them. Bringing outdoor clothing, outdoor footwear, or bulky personal belongings into inpatient departments is not permitted. Students are strictly prohibited from handling any medical devices, equipment, or instruments without the instructor's permission.

When communicating with patients and their relatives, as well as outside the healthcare institution, students are required to observe ethical and deontological principles and comply with applicable legislation concerning the confidentiality and protection of information. The disclosure or dissemination of patients' medical or personal information by any means, including through social media, verbal communication, or otherwise, is strictly prohibited.

In interactions with healthcare personnel and during discussions as part of the educational process, students are expected to adhere to the principles of tolerance, courtesy, and mutual respect. Inappropriate, disrespectful, or provocative behaviour is not permitted.

Use of Mobile Phones and Other Electronic Devices. The use of mobile phones and other electronic devices during classes is not permitted, except for emergency calls or when such devices are used to present supplementary materials relevant to the topic of the class.

Absence from Classes. Missed classes must be made up in accordance with the procedure established by the current Regulations on the Organization of the Educational Process at National Pirogov Memorial Medical University, Vinnytsya https://www.vnmu.edu.ua/downloads/other/polog_organiz_ocv_proc(2026).pdf), at the times specified in the make-up schedule published on the website of the Department of Pharmacy (VNMU website), either with the instructor on duty or with the student's regular instructor. Making up a missed class involves completing the assignments related to the topic of the missed class in accordance with the specific requirements of the discipline.

Mastery of lecture topics is assessed during practical classes, seminars (including the assessment of practical skills), and final assessment, in accordance with the Regulations on the Organisation of the Educational Process at National Pirogov Memorial Medical University, Vinnytsya (https://www.vnmu.edu.ua/downloads/other/polog_organiz_ocv_proc(2026).pdf)

Admission to Final Assessment. The procedure for admission to final assessment in the discipline is set out in the current Regulations on the Organisation of the Educational Process at National Pirogov Memorial Medical University, Vinnytsya (https://www.vnmu.edu.ua/downloads/other/polog_organiz_ocv_proc(2026).pdf).

Students are admitted to final assessment provided that they have no outstanding academic requirements**:** the average grade for ongoing assessment must be at least 3.0 (72 points on the 120-point scale); all final sessions for the content modules must have been completed with a passing grade **(**"3" or higher); and all missed practical classes must have been made up with a passing grade **(**"3" or higher**).** Otherwise, the student must improve their average grade by making up unsatisfactory grades and must make up all missed classes.

Additional Points for Individual Assignments. Students may receive additional points in the discipline for the successful completion of individual assignments, the content of which is published on the Department's website as part of the teaching and learning materials for the discipline. The number of points awarded is determined based on the results of the individual assignment in accordance with the current Regulations on the Organisation of the Educational Process at National Pirogov Memorial Medical University, Vinnytsya**.** (https://www.vnmu.edu.ua/downloads/other/polog_organiz_ocv_proc(2026).pdf).

Resolution of Conflict Situations

In the event of misunderstandings or concerns regarding the quality of educational services, assessment of academic performance, or other conflict situations involving an instructor, students should first raise their concerns directly with the instructor. If the issue remains unresolved, the student has the right to submit an appeal to the Head of the Department in accordance with the Regulations on the Consideration of Appeals from Higher Education Students at National Pirogov Memorial Medical University, Vinnytsya (VNMU website → General Information → Key Documents).

Students also have the right to contact the student self-government bodies, the administration of the Faculty (Institute), or the University administration, either directly or through the designated feedback channels ("trust boxes"), links and addresses for which are available on the official VNMU website.

The Department recognises that a student-centred approach entails students' responsibility for the conscious and active acquisition of knowledge and for proper compliance with the rules and requirements established by applicable legislation and VNMU regulatory documents. The Department reserves the right to inform the relevant University bodies of any violations committed by students.

Policy on Blended Learning

The organisation of blended learning is governed by the Regulations on the Introduction of Elements of Distance Learning at National Pirogov Memorial Medical University, Vinnytsya (VNMU website → General Information → Key Documents). The main online learning platforms used for classes are Microsoft Teams and Google Meet.

The procedures for conducting practical classes, lectures, make-up classes, and consultations in the distance learning format are published on the Department's webpage (VNMU website → Department of Pharmacy → For Students/Postgraduate Students → Mode of Study → Year of Study → Teaching and Learning Materials**).**

Communication with the Instructor. Students may contact the instructor via Microsoft Teams chat, messaging applications (Viber, Telegram, WhatsApp), or email**,** as determined by the instructor, during working hours.

9. LEARNING RESOURCES

Teaching and learning materials for the discipline are available on the Department's website. The materials can be accessed via: VNMU website → Department of Pharmacy → For Students/Postgraduate Students

LITERATURE

Core Literature for Technology of medicinal cosmetics

1. Handbook of Cosmetic Science and Technology /by Frank Dreher, Elsa Jungman, Kazutami Sakamoto, Howard I. Maibach. – CRC Press, 2022 – 450 p.
2. Textbook of Cosmetics Formulation / by Dr. Shikha Baghel Chauhan, Dr. Indu Singh - Independently published, 2023 - 408 p.
3. European Committee for Standardization. (2007). Cosmetics — Good Manufacturing Practices (GMP) — Guidelines on Good Manufacturing Practices (EN ISO 22716:2007).
4. The SCCS Notes of Guidance for the testing of cosmetic ingredients and their safety evaluation. 12th revision / Scientific Committee on Consumer Safety. Brussels : European Commission, 2023. 175 p. (SCCS/1647/22)
5. Regulation (EC) No 1223/2009 of the European Parliament and of the Council of 30 November 2009 on cosmetic products. Official Journal of the European Union. 2009. L 342. P. 59–209.
6. Leslie Baumann, MD Cosmeceuticals and Cosmetic Ingredients - McGraw Hill / Medical; 1st edition, 2014 - 368 p.
7. 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.
8. Gabriella Baki Introduction to Cosmetic Formulation and Technology, 2nd Edition, 2022 - 832 p.
9. Tharwat F. Tadros Pharmaceutical, Cosmetic and Personal Care Formulations - De Gruyter, 2018 - 410 p.
10. B.M. Mitiial, R.N. Saha a handbook of cosmetics – Vallabh Prakashan, 2006 – 240p.

Supplementary Literature for Technology of medicinal cosmetics

1. Dermatological and transdermal formulations / Edited by Kenneth A.Walters. – NewYork-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. - Wroclaw. – 2007. - 249s.
5. Consumption and exposure to finished cosmetic products: A systematic review / A.S. Ficheux, 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.

ELECTRONIC RESOURCES

1. University website: National Pirogov Memorial Medical University, Vinnytsya
2. Department website: VNMU Departments — Department of Pharmacy
3. University Library website: VNMU Library
4. National Scientific Medical Library of Ukraine: National Scientific Medical Library of Ukraine
5. World Health Organization: World Health Organization (WHO)
6. Ministry of Health of Ukraine: Ministry of Health of Ukraine
7. Public Health Center of the Ministry of Health of Ukraine: Public Health Center of Ukraine
8. English-language database of medical and biomedical literature: PubMed
9. English-language online resource for physicians and other healthcare professionals: Medscape
10. The SCCS Notes of Guidance for the testing of cosmetic ingredients and their safety evaluation: europa.eu

The course syllabus for the academic discipline "Technology of medicinal cosmetics" was discussed and approved at the meeting of the Department of Pharmacy (Minutes dated № 1. "26" 08 2026)

Course Coordinator:

Assoc. Prof., PhD — Tetiana VOITENKO
(Academic Degree, Academic Title) *(Signature)*

Acting Head of the Department of Pharmacy

Assoc. Prof., PhD — Yliia TOMASHEVSKA
(Academic Degree, Academic Title) *(Signature)*