

National Pirogov Memorial Medical University, Vinnytsia

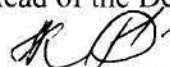
«APPROVE»

Higher Educational Institution
Vice-Rector for Scientific,
Pedagogical and Academic Affairs
Inna ANDRUSHKO

"29" August 2025 year

«AGREED»

Head of the Department of Pharmacy



Olena KRYVOVIAZ

"29" August 2025 year

SYLLABUS

of academic discipline

PROPEDEUTIC PRACTICE ON PHARMACY COMPOUNDING

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	2025-2026
Department	Pharmacy
Lecturer (if lectures are given)	-
Contact information	<i>pharmacy@vnmnu.edu.ua</i>
Syllabus compiler	Ass. Prof. Hanna KRAMAR

Status and structure of the discipline

Discipline status	Obligatory
Discipline status	CO 50 // practices
Discipline code in EPP/ discipline place in EPP	3 rd VI semester
Course / semester	75 hours /2.5 credits ECTS
The amount of discipline (the total number of hours / number of credits ECTS)	1 modules
Number of content modules	Practical classes 30 hours Independent work 45 - hours
The structure of the discipline	English
Language of study	Full - time (or remote according to the order)

1. Description of the discipline

Brief annotation, actuality. (What is the subject of study? What knowledge will the student acquire?)

The academic discipline «Propedeutic practice on Pharmacy Compounding» belongs to the cycle of disciplines of professional training of specialists in specialty 226 Pharmacy, industrial pharmacy, specialization 226.01 Pharmacy.

The discipline "Propedeutic practice Practice on Pharmacy Compounding" lays the foundations for higher education students' knowledge of regulatory documentation to ensure the required level of sanitary and anti-epidemic regime of pharmacies, rational selection and use of packaging materials for storage, transportation, use in the manufacture of drugs, excipients, in-pharmacy documentation on obtaining, quality control and storage in the pharmacy of purified water, organization and equipment of the workplace of a pharmacist engaged in the manufacture of non-sterile drugs, as well as dosing in pharmacy technology drugs by weight, volume and drops.

The subject of the course is the regulatory and technical documentation governing pharmaceutical legislation.

Prerequisites

The discipline is based on the study of regulatory and technical documentation governing pharmaceutical legislation, and also uses as prerequisites such disciplines of the curriculum as admission to pharmacy (basic interdisciplinary interactions in pharmacy, the concept of drug technology and biopharmacy), drug development, Technology of drug: pharmacy compounding.

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

The purpose of teaching the discipline is to get acquainted with the production facilities of the pharmacy, the rules of sanitation and safety; acquaintance with the requirements for processing and washing of pharmaceutical utensils, with equipment for obtaining purified water, quality control, storage conditions; mastering the skills of working with weighing instruments (scales, dispensers), familiarity with aseptic conditions and equipment used in the preparation of ophthalmic and injectable drugs, as well as the workplace of a pharmacist engaged in the manufacture of pharmaceutical preparations.

Postrequisites

The discipline is the basis for studying the disciplines "Drug Technology: Industrial Drug Technology", "Technology of Medicinal Cosmetics", "Pharmaceutical and Medical Commodity", "Organization and Economics of Pharmacy" which integrates teaching with the above disciplines and developing skills to apply knowledge in the process training and professional activities.

2. Learning outcomes.

- *Integral (IC)*: Ability to solve complex problems and critically comprehend and solve practical problems in professional pharmaceutical and / or research and innovation activities using the provisions, theories and methods of basic, chemical, technological, biomedical and socio-economic sciences; integrate knowledge and solve complex issues, formulate judgments on

insufficient or limited information: clearly and unambiguously convey their own knowledge, conclusions and their validity to the professional and non-professional audience.

- *Program learning outcomes for the discipline:*

PI.O 2. Apply knowledge of general and special disciplines in professional activities.

PI.O 3. To comply with the norms of sanitary and hygienic regime and safety requirements in the implementation of professional activities.

PI.O 4. Demonstrate the ability to independently search, analyze and synthesize information from various sources and use these results to solve typical and complex specialized tasks of professional activity.

PI.O 7. Perform professional activities using creative methods and approaches.

PI.O 9 Carry out professional activities using information technology, "Information databases", navigation systems, Internet resources, software and other information and communication technologies.

PI.O 12 Analyze information obtained as a result of scientific research, summarize, systematize and use it in professional activities.

PI.O 19 Predict and determine the impact of environmental factors on the quality of medicines and consumer characteristics of other pharmacy products during their storage.

PI.O 24 Plan and implement professional activities on the basis of regulatory legal acts of Ukraine and recommendations of good pharmaceutical practices.

PI.O 26 Choose a rational technology, manufacture medicines in various dosage forms according to prescriptions of doctors and orders of medical and preventive institutions, prepare them for release.

PI.O 30 Ensure quality control of medicinal products and document its results. To manage quality risks at all stages of the life cycle of medicines.

3. Content and logistic of the discipline

Module 1 "Technology of extemporaneous dosage forms"	6 semester 75 hours / 2,7 credits	Practical classes № - 5 Topics for self- study № 5
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The course includes 5 topics, which are divided into 1 thematic module.

Module 1 "Technology of extemporaneous dosage forms"

Topic 1. Sanitary and contraepidemic regime of pharmacy and pharmaceutical order. Purified water obtaining, its quality control and storage. Production premises, their cleaning. Hygiene of the personnel. Working place of pharmacist. Dosage in pharmacy compounding. Measuring devices. Types of packaging material; requirements.

Topic 2. General requirements for compounding of non-sterile medicines in the pharmacy. Dosage, packaging and labeling of solid and liquid medicines.

Topic 3. Dosage, packaging and labeling of semi-solid medicines and suppositories.

Topic 4. General requirements for compounding of sterile medicines in the pharmacy Working place of pharmacist preparing half-compounded products. Assortment of half-compounded products.

Topic 5. Preparing for differential credit for Propedeutic Practice. Writing of journals and reports, preparing for test

The topics of the lecture course are not provided by the work program.

Independent work involves the theoretical substantiation of the main issues of the topic and contributes to the acquisition of practical skills:

1. Algorithms and development of strategic efficiency maps.
2. Construction of logistics chains to optimize the work of pharmaceutical companies.
3. Types of logistics costs. Cost accounting schemes at a pharmaceutical company.
4. Methods of analysis of logistics costs and their impact on the enterprise.
5. Waste management. Construction of the logistics chain of the waste management process.
6. Material resource management systems. MRP system and its functions.
7. Inventory management. Balance calculation programs.
8. Stages of warehousing process. Operations carried out at the stage of receipt of pharmaceutical products.

Independent work of the student of higher education involves preparation for practical classes and intermediate tests, study of topics for independent extracurricular work, writing essays, preparation of presentations, tables. The control of mastering the topics of independent extracurricular work is carried out at the intermediate control classes and the final control of the discipline.

Individual work includes the study of scientific literature, preparation of reviews of topics for presentation at meetings of the student scientific group, the implementation of scientific and practical research, participation in specialized competitions, scientific and practical conferences, competitions of student research papers.

Calendar plans of practical classes, thematic plan of independent extracurricular work, the 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 / 3 course / Educational materials / or through the link <https://www.vnmua.edu.ua/кафедра-фармації#>. Access to the materials is carried out through the student's corporate account s000XXX@vnmua.edu.ua.

4. Forms and methods of monitoring academic performance

Current control in practical studies	Methods: <i>completion of individual tasks, preparation of a practice journal</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 (differential credit) at the end of the V semester	According to the Regulation of the Academic process in VNMU named after M.I. Pirogov (link https://www.vnmua.edu.ua/General information)
Learning success diagnostic tools	Theoretical questions, tests, clinically-oriented situational tasks, practical tasks, practical skills demonstration

5. 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.vnmu.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	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		
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

6. 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.

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. A student who has not been instructed is not allowed to practice.

In the event of the announcement of the "Air Alert" signal or other warning signals, the teacher stops the class, informs the students of the need to go to the civil defense shelter and stay there until the signal is canceled. The teacher informs higher education students of further actions after the signal is canceled: to continue the class or to recommend that they independently finalize the material with a subsequent survey at the next class (Order No. 505 of 30.08.2023).

Requirements for preparation for practical classes. The student must be prepared for a practical lesson, tasks to prepare for the current topic must be completed.

A student must come to class on time. A student who is late is not allowed to study and must work it in the prescribed manner.

In practical classes, the student must be dressed in a work uniform. Students who do not have a work uniform are not allowed to study.

The student 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 be cleaned after performing 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.vnmdu.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).

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.vnmdu.edu.ua/General_information/) at the time of work out schedule 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.vnmdu.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.

Conflict resolution. In case of misunderstandings and complaints to the teacher because of the quality of educational services, knowledge assessment and other conflict situations, student should submit his / her claims to the teacher, in VNMU named after M.I. Pirogov.

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.

Feedback from teachers carried out through a distance learning platform (Microsoft Teams) is via messengers or e-mail (at the teacher's choice) during working hours.

Higher education applicants 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 mastery of practical skills. The policy of the department in the provision of educational services is student-centered, based on the regulations of the Ministry of Education and the Ministry of Health of Ukraine, the university charter and the procedure for the provision of educational services, regulated by the basic provisions of the organization of the educational process at the Pirogov National Medical University and the principles of academic integrity.

7. Educational resources.

Educational and methodological support of the discipline is published on the website of the department ([https://www.vnmdu.edu.ua/ Department of Pharmacy # / for students](https://www.vnmdu.edu.ua/Department_of_Pharmacy_#/for_students)). Consultations are held twice a week according to the schedule.

8. The timetable and distribution of groups with assigned teachers are published on the web page of the department ([https://www.vnmdu.edu.ua/ Department of Pharmacy # / for students](https://www.vnmdu.edu.ua/Department_of_Pharmacy_#/for_students)).

9. **Questions to the intermediate and final semester control** (credit) of the discipline are published on the web page of the department (Department of Pharmacy # / for students).

Recommended literature

Basic

1. Pharmacy based technology of drugs: the manual for applicants of higher education / O.I.Tykhonov, O.A. Yarnykh, O.A. Rukhmakova, G.B. Yuryeva: Edited by O.I. Tykhonov and T.G. Yarnykh. Kharkiv:NUPh:Golden Pages, 2019. - 488 p.
2. Remington: The Science and Practice of Pharmacy, Twenty Third Edition/ Remington J. P. Academic press: An imprint of Elsevier, 2020. 1000 p <https://doi.org/10.1016/C2018-0-04991-9>

Additional literature


1. European Pharmacopoeia, 10th Edition 2020, English
2. The International Pharmacopoeia / - [8-th ed.]. Geneva : World Health Organization, 2019. 2532 p. ISBN: 9241545364.
3. British pharmacopoeia. London: Medicines and Healthcare products Regulatory Agency: 2018.
4. The United States pharmacopoeia. National formulary. Rockville (MD): United States Pharmacopoeial Convention; 2017.
5. The USP Pharmacists' Pharmacopoeia. - Second edition.- 2008. - P. 1114.
6. EudraLex: The Rules Governing Medicinal Products in the European Union. Volume 4: Good Manufacturing Practice / European commission: 22 November 2017. Access. https://ec.europa.eu/health/system/files/2017-11/2017_11_22_guidelines_gmp_for_atmps_0.pdf
7. An imprint of Elsevier, 2020. 1000 p. <https://doi.org/10.1016/C2018-0-04991-9>
8. Encyclopedia of Pharmaceutical Science and Technology, Fourth Edition, Six Volume Set (Print)/ James Swarbrick Taylor & Francis, 2013 4296 p.
9. Voigt's Pharmaceutical Technology Alfred Fahr, Gerrit L. Scherphof (Translator). Wiley, 2018. 888p.
10. Pharmaceutical Technology: A Practical Manual / Sushma Talegaonkar. - PharmaMed Press, 2019. 232 p.
11. Essentials of Pharmaceutical Technology/ Ajay Semalty, Mona Semalty, M. S. M Rawat. - PharmaMed Press, 2019.364 p. ISBN 9385433172
12. Handbook of Pharmaceutical Technology I. K. Ghosh CBS Publishers & Distributors, 2018 283 crop.ISBN 8123908504
13. Rees J. A. Introduction to pharmaceutical calculations / Judith A Rees; Ian Smith; Jennie Watson - [4-th edition]. - London and Chicago : Pharmaceutical Press, 2016.. 290 p. ISBN: 9780857112439.

Information resources

1. E-mail address of the university website: <http://vnmdu.edu.ua>
2. E-mail address of the university library website: <http://library.vnmdu.edu.ua>
3. E-mail address: Department of Pharmacy, Pirogov National Medical University: <http://www.vnmdu.edu.ua>
4. World Health Organization <http://www.who.int/en/>
5. Testing center <https://www.testcentr.org.ua/uk/>
6. Ministry of Health of Ukraine <https://moz.gov.ua/>

The syllabus of the discipline "Propedeutic practice on Pharmacy Compounding" was discussed and approved at the meeting of the department Department of Pharmacy (record № J, dated August "26" 2025)

Responsible for the academic discipline
(signature)



Hanna KRAMAR

The Head of the Pharmacy Department



Olena KRYVOVIAZ