National Pirogov Memorial Medical University, Vinnytsia

«APPROVE»
Higher Educational Institition
Vice-Rector for Scientific,
Pedagogical and Academic Affaifs
_____ Inna ANDRUSHKO
"29" August 2025 year

«AGREED»
Head of the Department of Pharmacy
_____ Olena KRYVOVIAZ
"29" August 2025 year

SYLLABUS
of academic discipline

«PHARMACEUTICAL TERMINOLOGY AND BASICS OF PHARMACEUTICAL CALCULATIONS»

Specialty	I 8 Pharmacy
Specialization	I 8.01 Pharmacy
Educational level	the second (master`s) level
Educational programme	*EPP «Pharmacy», 2025*
Academic year	2025-2026
Department	Pharmacy
Lecturer (if lectures are given)	Prof. of HEI Olena KRYVOVIAZ, Ass. Prof. of HEI Yulia TOMASHEVSKA, PhD, Ass. Prof. Hanna KRAMAR
Contact information	*pharmacy@vnmu.edu.ua*
Syllabus compiler	prof. of HEI Olena KRYVOVIAZ

Status and structure of the discipline

Discipline status	Elective course
Discipline code in EPP/ discipline place in EPP	EC 9// discipline of professional training
Course / semester	1 course (II semester)
Scope of the discipline (the total number of hours / number of credits ECTS)	90 hours /3 credits ECTS
Number of content modules	1 module
The structure of the discipline	Lectures - 10 hours Practical classes 30 hours Extracurricular work 50 hours
Language	English
Form of study	Full-time (*or remote according to the order*)

1. Description of the course

Brief annotation, actuality.

The academic discipline "Pharmaceutical terminology and basics of pharmaceutical calculations" belongs to the cycle of disciplines of professionally-oriented training of specialists under the OPP "Pharmacy", 2025. The discipline lays the foundations of modern pharmaceutical terminology and forms the concept of basic pharmaceutical calculations of dosage form technology. Acts as a link between the theoretical disciplines that form the profile of the Master of Pharmacy.

The subject of the elective course is pharmaceutical terminology and basic pharmaceutical calculations of dosage form technology.

Integrative final program learning outcomes, the formation of which is facilitated by this elective course:

know:

- Basic terms used in pharmacy
- Classification of LF
- Input routes
- Higher single and daily doses of toxic, narcotic, intoxicating, potent substances.
- Measures of weight in pharmacy

be able:

- Check and, if necessary, correct single and daily doses of drugs A and B, the rules of release of narcotic drugs and similar substances.
- Calculate the number of components of the prescription, the total volume, or weight of the drug, write a passport of written control.
- Use professional knowledge to solve practical situations.

Prerequisites

The discipline is based on the study of basic terms and pharmaceutical calculations, and also uses as prerequisites such disciplines of the curriculum as admission to pharmacy, higher mathematics.

The purpose of the course and its importance for professional activity. The purpose of teaching the discipline is to deepen professional knowledge and study of basic pharmaceutical terms, their systematization and interrelation; mastering pharmaceutical calculations that are the basis for the manufacture of quality medicines.

Postrequisites

The discipline is the basis for the study of disciplines: drug technology: ATL, drug technology: PTL, pharmacology, which involves the integration of teaching with the above disciplines and the formation of skills to apply knowledge in further learning and professional activities.

2. Learning outcomes.

Competencies and learning outcomes that the discipline contributes to:

Integral competence (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.

General competencies (GC):

GC 02. Ability to think abstractly, analyse and synthesise.

GC 03. Knowledge and understanding of the subject area and understanding of professional activities.

GC 06. Skills in using information and communication technologies.

GC 12. The ability to make decisions and act in accordance with the principle of non-acceptance of corruption and any other manifestations of dishonesty.

Special (Professional, subject) competencies (PC):

PC 01. Ability to collect, 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 problems of pharmacy in broad or multidisciplinary contexts.

PC 03. Ability to ensure the rational use of prescription and non-prescription drugs and other pharmacy products in accordance with the physicochemical, pharmacological characteristics, biochemical, pathophysiological characteristics of a particular disease and pharmacotherapeutic regimens for its treatment.

PC 18. Ability to organize and carry out production activities of pharmacies for the manufacture of medicines in various dosage forms according to doctors' prescriptions and orders of medical institutions, including justification of technology and selection of auxiliary materials in accordance with the rules of Good Pharmacy Practice (GPP).

Program learning outcomes for the discipline:

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

PLO 02. Critically comprehend scientific and applied problems in the field of pharmacy.

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

PLO 07. Demonstrate the ability to independently search, analyze and synthesize information from various sources, including professional literature, patents, databases; evaluate it, in particular, using statistical analysis, as well as apply these results to solve typical and complex specialized tasks of professional activity, including the development and production of medicines.

PLO 09. 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 limitations, determine the best ways to achieve goals.

PLO 22. Develop technological documentation for the manufacture of medicines, choose a rational technology, manufacture medicines in various dosage forms according to prescriptions and requirements (orders) of medical and preventive care institutions, and prepare them for release.

3. Content and logistics of the discipline

Module 1 «Pharmaceutical terminology and basics of pharmaceutical calculations»	II semester 90 hours /3 credits ECTS	Lectures №5 Practical classes №15 Extracurricular work №15

The course includes 10 topics, which are divided into 1 thematic module.

Module 1 «Pharmaceutical terminology and basics of pharmaceutical calculations»

Topic 1. Basic pharmaceutical terminology

Topic 2. Rights and obligations of pharmaceutical workers. Qualification requirements

Topic 3. Basic terms and concepts of biologically active substances

Topic 4. Connection between pharmaceutical terms in drug technology. Classifications of MF. **Topic 5.** Ways of introduction.

Topic 6. Measures of weight in pharmacy.

Topic 7. Prescription. The concept of doses. Checking of doses in extemporaneous drugs.

Topic 8. Calculations in solid dosage forms

Topic 9. Calculations in semi-solid dosage forms

Topic 10. Calculations in liquid non-sterile dosage forms: non-aqueous solutions, drops, heterogeneous and combined liquid MF

Topic 11. Calculations in sterile and aseptic dosage forms

Topic 12. Basic terms of homeopathic medicines

Topic 13. Calculations in homeopathic dosage forms. Dilution

Topic 14. Veterinary dosage forms. Terminology, calculations.

The topics of the lecture course reveal problematic issues of the relevant sections of the discipline.

Lecture methods: not taught in class, materials are posted on the department's information resources.

Practical classes provide theoretical substantiation of the main issues of the topic and contribute to the formation of skills:

theoretically oriented, which include

- entrance test control of knowledge of the student of higher education on the topic of thelesson;
- discussion and systematization of normative documents, material of the main and auxiliary literature;
- solving theoretical problems related to the lesson topic;
- solving situational tasks related to the specifics of the development and use of personalized medicinal and cosmetic products;
- conducting initial knowledge control using theoretical questions, situational and calculation problems, recipe prescriptions;

or practically oriented, which include

- conducting a test entry control of the readiness of higher education applicants for themanufacture of a certain type of medicinal forms;
- discussion of the step-by-step technology of prescriptions related to the topic of practical training;
- production of personalized medicinal and cosmetic products, or their components;
- solving individual situational tasks;
- a teacher's check of the quality of work performed by students of higher education usingan oral survey;
- carrying out initial control of learning the material using theoretical questions, situational and calculation problems, recipe prescriptions.

Practical classes provide theoretical substantiation of the main issues of the topic and contributeto the formation of skills:

- Provide the client with basic personalized pharmaceutical care
- Use professional knowledge to solve practical situations.
- Use online resources of centers of personalized pharmacy
- Analyze professional information, make informed decisions, acquire up-to-date knowledge.
- Provide pharmaceutical care to patients in need of personalized medical care
- To carry out professional activities that require updating and integration of knowledge.
- Apply a personalized approach in cosmetology
- Make confectionary dosage forms
- Prepare basic cosmetic products
- To use normative legal acts regulating pharmaceutical activities in Ukraine and abroad.
- Take pharmaceutical factors into account when selecting personalized medicinal andcosmetic products.

The student's independent work involves preparation for practical classes and intermediate tests, studying topics for independent extracurricular work, writing essays, preparing 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.

Thematic plans of lectures, 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.vnmu.edu.ua/кафедра-фармації#.. Access to the materials is carried out through the student's corporate account s000XXX@vnmu.edu.ua.

4. Forms and methods of monitoring academic performance

Current control in practical studies	Methods: *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)*
Final control of the discipline (credit) at the end of the 5th semester	Methods: *oral questioning* (according to the Regulation of the Academic process in VNMU named after M.I. Pirogov (link https://www.vnmu.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»
Credit	On a 200-point scale (the arithmetic average grade for the semester is converted into points) Credited: 122 to 200 points Not credited: less than 122 points (See Grading Scale)

Discipline assessment scale: national and ECT

The sum of grades for alltypes 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 reexaminationof 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 (link https://www.vnmu.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. 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 92 of 03.09.2024).

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 should come to class on time, without delay. 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.vnmu.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.vnmu.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.vnmu.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. The procedure for conducting practical classes and lectures, practicing and consultations during distance learning is published on the department's website.

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.vnmu.edu.ua/кафедра-фармації# / 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.vnmu.edu.ua/кафедра-фармації# / for students).

9. Questions to the intermediate and final semester control (credit) of the discipline are published on the web page of the department (https://www.vnmu.edu.ua/кафедра-фармації# / for students).

The list of literature recommended for studying subjects:

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 pharmacopeia. National formulary. Rockville (MD): United States Pharmacopeial 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. 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.
1. 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
2. Encyclopedia of Pharmaceutical Science and Technology. Fourth Edition. Six Volume Set (Print)/ James Swarbrick Taylor & Francis. 2013 4296 p.
3. Voigt's Pharmaceutical Technology Alfred Fahr, Gerrit L. Scherphof (Translator). Wiley, 2018. 888p.
4. Pharmaceutical Technology: A Practical Manual / Sushma Talegaonkar. - PharmaMed Press, 2019, 232 p.
5. Essentials of Pharmaceutical Technology/ Ajay Semalty, Mona Semalty, M. S. M Rawat. - PharmaMed Press. 2019.364 p. ISBN 9385433172
6. Handbook of Pharmaceutical Technology L. K. Ghosh CBS Publishers & Distributors. 2018 283 стор.ISBN 8123908504
7. 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://vnmu.edu.ua
2. E-mail address of the university library website: http://library.vnmu.edu.ua
3. E-mail address: Department of Pharmacy, Pirogov National Medical University: http://www.vnmu.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/
7. Center for Public Health of the Ministry of Health of Ukraine https://phc.org.ua/kontrol-zakhvoryuvan

The syllabus of the discipline "Pharmaceutical terminology and basics of pharmaceutical calculations" was discussed and approved at the meeting of the department Department of Pharmacy (record № 1, dated August "26" 2025)

Responsible for the academic discipline _____ Olena KRYVOVIAZ
(signature)

The Head of the Pharmacy Department _____ Olena KRYVOVIAZ